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**FEASIBILITY STUDY
FOR
AN INDOOR AQUATIC
AND SPORT ADMINISTRATION CENTRE
CITY OF HAMILTON**

Prepared By

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1.0 EXECUTIVE SUMMARY

This study provides an estimate of the potential use of an aquatic facility with a 50 metre competitive pool and a 50 metre warm-up pool. Potential use by competitive clubs and the general public in Hamilton was assessed.

The estimate of club use was based on data provided by Hamilton aquatic clubs and the Department of Culture and Recreation. The analysis suggests that a 50 metre competitive pool would be used close to capacity in prime and non-prime time by Hamilton's aquatic clubs and competitive clubs based in the City's schools. A 50 metre warm-up pool in the same complex would be used to a much lesser extent by the competitive groups and considerable time would be available for general public use.

The levels of competitive club use that were provided assume that:

- . levels of participation in competitive aquatic programs expand significantly.
- . scheduling conflicts in prime time can be avoided so that all clubs are able to maximize their use of the facility.
- . pricing policies do not restrict access to the facility for some groups.
- . the two 50 metre pools are scheduled in a manner that maximizes the user's exclusive use of the facility.

These considerations suggest that the projections may be optimistic.

As noted earlier, the projected use shows high levels of competitive group use and near capacity use of the 50 metre competitive pool. The overall use of the facility, and particularly adequate use of the 50 metre warm-up pool, will depend on levels of general public for recreational and instructional swimming. Anticipated levels of public, recreational use of new swimming facilities cannot be reliably predicted with available information. It is our expectation, however, that in addition to organized use of a new aquatic complex in Hamilton, a significant level of community use of the 50 metre warm-up pool could result if it is designed as a leisure pool, well marketed and accessible to residents.

The space program, as established by the need analysis, consists of the following key components:

- . 50 m competition/diving pool
- . 50 m warm-up/wave pool
- . spectator seating for 3000 (1500 permanent and 1500 temporary seats)
- . fitness centre
- . whirlpool
- . play area
- . sports administrative centre

-
-
- . sports medicine clinic
 - . restaurant
 - . management offices
 - . service space, etc

Total gross floor area of the complex is about 137,000 sq.ft. The estimated construction cost in Spring 1988 is about \$23 million. Total project cost including furnishings, professional fees and expenses and contingencies is projected at \$29 million.

A preliminary estimate of total operating costs for the facility was determined based on comparable cases. The facility's total gross annual operating cost is estimated at about \$1.7 million. Actual operating cost will depend on the facility's final design, actual levels and type of use and management practices.

Three potential sites were identified by the Department of Culture and Recreation as available for the construction of the aquatic facilities. They were visited and evaluated in accordance with such criteria as location, area, development cost, development limitations, landform, utilities, aesthetics, public safety and others.

The Mohawk Sports Park site appears to be the most desirable location. It is spacious and surrounded by beautiful parkland with impressive views of the Hamilton skyline. Surrounded by arterial streets and adjacent to the proposed Red Hill Expressway, the site is easily accessible. Being flat and open it lends itself to the development of the aquatic complex and compatible recreation use.

2.0 TERMS OF REFERENCE

1. To assess the needs for an aquatic facility in Hamilton and the market requirements for local, regional, provincial and national use.
2. To identify specific program potential and user volumes.
3. To develop the space requirements to serve aquatic training to include, but not limited to:
 - . competitive speed swimming
 - . water polo
 - . synchronized swimming
 - . diving
 - . leisure use
 - . lifeguard training
 - . administrative support
 - . offices/meeting facilities
 - . security features/doors access
 - . weight training area
 - . sports medicine clinic
4. To develop the criteria for site location dealing with:
 - . accessibility
 - . aesthetics
 - . utilities
 - . property development requirements
 - . surface ground water
 - . cost
 - . possibility of other facilities to be added at a later date, i.e., gym, squash, etc.
5. To identify the capital costs for the project including:
 - . construction costs
 - . consultant fees
 - . equipment cost
 - . furnishing cost
 - . contingencies
 - . combined leisure and competitive facilities vs. individual facilities (costs)

-
6. To review capital budget impact
 7. To review ways of capital funding, taking advantage of Federal and Provincial grants, service clubs, individual and commercial support and joint development.

It was further stipulated by the Aquatic Task Force that, in accordance with the Culture and Recreation Master Plan, prepared in 1985 and approved by Council, the Aquatic Facility should provide the necessary facilities for training elite amateur athletes as well as the capability of hosting competitions to the Canadian Amateur Swimming Association (CASA) national championship level.

3.0 INTRODUCTION

This report documents the results of the Feasibility Study for an Indoor Aquatic and Sports Administrative Centre in the City of Hamilton.

Moffat Kinoshita Associates Incorporated, in collaboration with the Institute of Environmental Research and Aquatic Consultants Inc., was retained by the City to evaluate the feasibility of developing an aquatic complex to serve community recreational needs and to host regional, provincial and national competitions.

A complex of this nature could include facilities for competitive events, training and leisure use, office/administrative/meeting space, and complementary facilities such as a weight training area and a sports medicine clinic. The scope of the need analysis of this study, however, was limited to evaluating the potential use of aquatic facilities.

4.0 AQUATIC FACILITIES ADDRESSED IN THE STUDY

In 1986, an Aquatic Task Force determined that "improved aquatic (and sports administrative) facilities would be needed for the local, regional, provincial and national development of the disciplines of swimming and for hosting major aquatic events."¹ Competitive speed swimming, water polo, synchronized swimming, diving, and lifeguard training represent some of the local aquatic programs for which improved facilities were deemed essential to further skills development. New aquatic facilities would also provide Hamilton residents with increased opportunities to participate in leisure activities. In addition, the possibility of hosting major aquatic meets and competitions would occur if appropriate facilities were made available in Hamilton. Consequently, this study evaluates the potential to meet this range of activity needs by developing a complex to include the following aquatic facilities:

- a 50 metre competitive/training pool
- a 50 metre warm-up pool²
- a diving pool

The potential use of these facilities is discussed in the following sections of the report.

¹ Project Terms of Reference.

² It was established by the Aquatic Task Force that only a 50 metre pool should be considered for warm-up use.

5.0 FACTORS INFLUENCING THE FEASIBILITY OF AQUATIC FACILITY DEVELOPMENT IN HAMILTON

This section of the report considers existing conditions and trends that will influence the use of new aquatic facilities in Hamilton. Collectively, these factors represent a number of underlying assumptions upon which the estimates of expected facility use were based. Each of these factors is discussed below.

5.1 The Existing Supply And Use Of Indoor Aquatic Facilities In Hamilton

Although Hamilton does not currently have aquatic facilities that are directly comparable to those being considered in this study, existing indoor pools are used for the types of programs and activities that would occur at a new complex. Consequently, the supply and use of existing facilities must be considered in determining the potential to support new development. Data on the supply and use of pools in Hamilton were collected by City staff and provided to the consultants.³

There are 16 indoor pools in Hamilton.⁴ Twelve of these are municipal pools, ten of which are attached to schools. The remaining four pools include the Boys' and Girls' Club pools, two YWCA pools and one YMCA pool. Although these pools are available for community use, the extent of availability varies by facility. Community use of school pools occurs during non-academic hours. During the academic year, the availability of these pools for public use ranges from 30 to 52 hours per week. In the summer, community access to school pools increases considerable. The YWCA, YMCA and Boys' and Girls' Club pools are also used to varying degrees by the community-at-large. Their availability, however, is subject to the individual agency's time requirements for its own programming in the fall, winter and spring. Public access is restricted to a greater extent than during the summer months. As is typical in most communities, therefore, public access to indoor pools in Hamilton is neither consistent across facilities nor throughout the year, and is not solely determined by the number of facilities.

Existing indoor pools are traditional in design, with bather capacities ranging from 75 to 166.⁵ In the majority of cases (81%), the pool's design prohibits its use for a full range of aquatic programs and special events. Despite such deficiencies that apparently inhibit the type and range of uses that might otherwise occur, the pools are used to or near capacity and could not be expected to accommodate significant

³ See Appendix A for detailed pool inventory data.

⁴ Outdoor pools and the McMaster University pool have not been included in our discussions and analyses.

⁵ Throughout this report hot pools have not been included in our discussions and analyses since they are not comparable to the facilities being considered in the study.

increases in activity. Across all pools, available time during the fall/winter/spring season totals 107 hours per week, of which 56% (60 hours) comprises prime-time. The distribution of available hours among the pools, however, shows that individually they could not accommodate much more use. The maximum amount of weekly time available for group use, rental or new programming at any one pool is 12 hours during prime-time and ten hours of non-prime time. Most pools (63%) reported current demand for use that cannot be accommodated. The majority (88%) have also experienced stable or increasing levels of use during the past five years and most (75%) expect use to continue to increase in future.

Collectively, these indicators suggested that Hamilton's pools are used to capacity now and will maintain this level of use over the long-term. At the same time, capacity use, restrictions on availability and the traditional design of existing pools appear to preclude the possibility of expanded or new use.

5.2 Population Growth And Age Structure

Hamilton's current population totals approximately 307,000 and is expected to remain stable over the long-term. The existing population distribution, however, is anticipated to shift somewhat from the lower City to the Mountain where new residential development is planned. By the year 2001, the population of the lower City is projected to total approximately 176,000 representing a 10% loss from the current figure of 196,000. Conversely, population on the Mountain will increase by 18%, from approximately 111,000 to 131,000. Most of this growth is expected to occur in the area bounded by Upper Ottawa Street, Upper James Street, the Mountain Freeway and Stone Church Road as existing undeveloped land is converted to residential use.

An overall stable population suggests that, throughout the City as a whole, long-term demand for access to aquatic facilities and programs will not increase as a result of population growth. At the same time, population shifts may produce corresponding changes in the use of pools in the upper and lower City. Generally, however, growth-related factors cannot be expected to contribute significantly unmet demand for pool use that may already exist in the City.

In keeping with broader trends, Hamilton's population is also anticipated to age over the long-term. The population exceeding 26 years of age will increase proportionately while representation of younger age groups will decline. It is reasonable to assume that, as highly specialized activities demanding an unusual level of personal commitment and perseverance, the market of potential participants for competitive aquatics comprises a small segment of that for swimming as a whole. Available information suggests that "traditionally, less than 5% of the swimming population

takes part in competition such as water polo, synchronized swimming, diving or racing."⁶

Data provided by several Ontario aquatic associations tend to support this statement.⁷ It was indicated that Ontario-wide participation in competitive diving and synchronized swimming totals roughly 4,500 people including those in training programs.⁸

Based on information provided by Hamilton's aquatic clubs, it is estimated that approximately 87% of their participants are children and teenagers. As Hamilton's population ages, therefore, the market for competitive aquatics, which is already small based on the above-noted indicators, may become more restricted. As discussed further below, however, leisure activity trends suggest increasing amount of participation in swimming as a whole among all age groups. Although trend data provided by the aquatic associations point to future growth in competitive activity, the nature of competitive aquatics suggests it is likely that additional demand for use of aquatic facilities as a result of increased participation will emerge primarily in the recreational/leisure sphere of swimming activity. These considerations suggest that the future market for competitive aquatics may become more restricted but that the demand for swimming among the population as a whole will continue to grow.

5.3 Leisure Trends

General trends point to increasing participation in physical activity as our society becomes more health and fitness conscious. Shifts in the nature of participation, however, are occurring in response to growing interest in activities that can be pursued individually, by young and old alike, by men and women, as a family, conveniently, and at relatively low cost. These trends suggest continuing increases in participation in recreational swimming since it is an activity possessing a number of the characteristics that are gaining popularity. It appeals to both sexes, all age groups and all income brackets. It is conducive to both individual and group involvement and promotes physical well-being. As a well-developed activity in the overall market of leisure services, swimming also provides participants with opportunities to select the type and level of activity they wish to pursue. There is not evidence to suggest that leisure trends in Hamilton do not conform to broader

⁶ Report by Aquatic Consultants Incorporated.

⁷ Synchro Ontario, the Canadian Amateur Swimming Association (Ontario Section), the Water Polo Ontario Association and the Springboard Diving Association were contacted by telephone to collect available information on competitive aquatic activities.

⁸ Synchro Ontario, Springboard Diving Association.

patterns. Consequently, it is expected that participation in recreational aquatic activities among City residents will increase in the future and that demand for additional access to aquatic facilities and programs will emerge despite a stable population.

5.4 The Regional Market For Aquatic Facilities

In contrast to community-serving indoor pools which primarily satisfy a large, local market of recreational swimmers, aquatic facilities capable of accommodating large-scale competitive training and events draw their use from a much smaller market of specialized activity. Consequently, fewer facilities of this nature are required to satisfy demand for these types of aquatic activities, and competition among facilities to attract these uses is stronger.

It is important to recognize that the existence or future development of large scale aquatic facilities outside Hamilton will influence the use of any facilities provide by the City. In the immediate area, such facilities include the Wayne Gretzky Sports Complex in Brantford, the Brock University Pool in St. Catharines, the Etobicoke Olympium and the proposed Mississauga Sports Training Complex. The 67 metre, 8 lane, Brantford Aquatic Centre as part of the Wayne Gretzky Sports Complex is less than one-half hour's drive from City Hall in Hamilton. This pool hosts regional, national and international platform diving, springboard diving, waterpolo and competitive swimming competitions. The community use of the 50 metre Brock University pool includes local and regional swimming and diving meets. The Etobicoke Olympium comprises a 50 metre pool and a 25 yard pool and accommodates competitive training and special events involving highly skilled athletes. The proposed Mississauga Sports Training Complex is anticipated to be a major facility including 50 metre and 25 metre pools, an indoor field house, outdoor track and field facilities, multi-purpose areas, and associated supported facilities. In the broader geographic area, we are aware of a number of proposals that may also affect Hamilton's ability to attract competitive uses, program participants, and special aquatic events to the City. The City of Scarborough has recently undertaken a feasibility study for a major aquatic centre and it is possible that facilities similar to Hamilton's are being considered here. The Town of Richmond Hill is currently studying the development of a 50 metre competition pool complex. A Committee in Toronto is assessing the potential to host the 1996 Olympics. The initial report prepared for this group proposed a new Olympic Complex for Metropolitan Toronto for swimming and diving, with a warm-up pool and 20,000 seats. Although part of this facility is proposed for conversion after the Games, a major competitive swim facility would remain.

The scope of this study did not include an assessment of the regional market for competitive-scale facilities. The municipality should monitor the development of these major aquatic complexes and assess their implications for the Hamilton facility.

6.0 POTENTIAL USE OF THE AQUATIC FACILITY

This section of the report describes the potential use of the aquatic facility based on input from City staff, existing aquatic clubs, our review of available data on the recreational use of the facility, and additional background research. The objective was to arrive at an estimate of total use combining existing, unmet demand for the aquatic facilities being considered with new use that might reasonably be expected to occur over the long term.

As previously discussed, the City is interested in developing a facility comprising a 50 metre competitive/training pool, a 50 metre warm-up pool and a diving pool. The complex is to accommodate both local use and various levels of competitive-scale activity. Our estimate of total use, therefore, included expected use from the following three markets:

- . locally-based aquatic groups
- . the community
- . regional, provincial and national competitions/meets

Potential use from each of these markets is described below, and followed by a discussion of the expected impacts of a new aquatic complex on existing pools.

6.1 Locally-Based Aquatic Group Use

Our estimates of group use were derived from the responses of 16 locally-based clubs and groups that were surveyed by City staff. The information collected was subsequently verified at a meeting attended by the consultants and representatives of the clubs that participated in the survey. Of the 16 organizations surveyed, 14 indicated that they would use a new aquatic facility in Hamilton. Of the 14 potential user groups, ten are aquatic clubs that draw their participants from the community-at-large and four are school-based competitive teams.⁹

The groups' responses were used to calculate the hours, and corresponding proportions, of available prime-time and non-prime time that would be scheduled in a peak week and annually in a 50 metre competitive/training pool, a 50 metre warm-up pool and a diving pool. The results of these calculations are shown in Figures 1 and 2.

Typically, a complex of this nature would operate between 110 and 120 hours per week. For our purposes, we have assumed a 115-hour operating week. Of total available time, evenings and weekends are considered prime-time which represents approximately 65 hours per week. The remaining 50 hours comprises non-prime, weekday time. We have assumed a 52 week operating year for the purposes of these calculations. As shown in Figure 1, a 50 metre competitive/training pool would be well used in peak week by aquatic groups, particularly during non-prime time. This

⁹ See Appendix B for detailed data collect from the groups.

heavy use during non-prime-time is due to high levels of reported use by school teams. With the exception of non-prime time, weekly use of the 50 metre warm-up pool by organized clubs would fall well below half of available time. Use of the diving pool is very limited in both prime and non-prime time.

Our estimates of facility use in Figure One represent one week during peak season when it is assumed that all clubs and groups will be active. Based on responses to the survey, the aquatic groups' operating seasons range from 26 to 50 weeks per year. In Figure 2 we have calculated annual use. The total weekly hours requested by the groups were applied to their proposed operating season at a new facility. (In many cases the groups reported they would extend their existing operating season if a new facility was built. In cases where groups did not report an operating season, we assumed 50 weeks for community based clubs and 32 weeks for school clubs). As indicated in Figure 2, the annual estimate of prime-time use declines slightly from the peak week estimate. There is a significant decline in non-prime time use, however, which is attributed to an assumed 32 week operating season for the schools.

Figure 1
Hours of Aquatic Facility Use by Clubs - Peak Week

<i>Facility</i>	<i>Total Hours Requested</i>		<i>% of Available Hours</i>	
	<i>Prime</i>	<i>Non-Prime</i>	<i>Prime</i>	<i>Non-Prime</i>
50 m Competitive/ Training Pool	50.50	52.00	78%	104%
50 m Warm-up Pool	22.00	26.00	34%	52%
Diving Pool	11.75	6.00	18%	12%

Figure 2
Hours of Aquatic Facility Use by Clubs - Annual Estimate

<i>Facility</i>	<i>Total Hours Requested</i>		<i>% of Available Hours</i>	
	<i>Prime</i>	<i>Non-Prime</i>	<i>Prime</i>	<i>Non-Prime</i>
50 m Competitive/ Training Pool	2398.5	1991.5	71%	77%
50 m Warm-up Pool	1076.0	832.0	32%	32%
Diving Pool	463.0	192.0	14%	7%

It should be noted that the hours of use described in Figures 1 and 2 are based on a number of assumptions as follows:

- . Our estimates of facility use assume all programs and activities would be scheduled consecutively and that no conflicts would occur in arranging pool time for users. Simultaneous scheduling or conflicts that might preclude groups from acquiring time, therefore, would reduce the likelihood of achieving the level of use described here.
- . The groups were asked to project their use of the facility without information on rental rates. Projections of use, therefore, likely assume existing rates. If higher fees were charged for this facility, anticipated use might be affected. This would undoubtedly be the case for the considerable school use that is projected for the facility.
- . In some cases, the annual estimate is based on the aquatic club's projection of a significant expansion in their current operating season.
- . The use shown in Figures 1 and 2 assumes that the aquatic clubs require the entire pool for their activities; if some activities were accommodated in one-half of the pool, additional pool time would be available.
- . Some long-term potential may exist to generate additional group use by providing facilities conducive to the development of programs and activities that existing pools cannot accommodate. It was reported by individuals representing synchronized swimming that, if appropriate facilities were made available, a competitive club could be developed and that the resulting use of pool time could represent up to 37 additional hours per week in two pools or 22 hours in one pool if training sessions occurred simultaneously. Most of this use would also occur during prime-time.¹⁰

Figure One indicates considerable expected use of the two 50 metre pools during the peak week by the existing aquatic clubs. A separate diving pool would not be well used. The time in the 50 metre pools that is not being scheduled for club use, particularly in the annual estimate, would be available to the general public for programs and recreational use. Potential community use of these pools is discussed in a subsequent section of the report.

The terms of reference for this study demanded that aquatic club use of the proposed aquatic complex be determined based on input from City staff and the existing clubs. The information provided indicates considerable outstanding demand for organized, club use of aquatic facilities in the City of Hamilton. For all groups, reported use of a new aquatic facility represents a 94% (165 hour) weekly increase

¹⁰ This information was received in a separate submission following completion of the survey.

over the amount of pool time used now (174.75 hours per week). Information is not available to confirm or contradict the clubs' projections of increased demand. Surveys of the general public have not been undertaken to measure outstanding demand for competitive swimming opportunities. The majority of the groups (79%), however, indicated they are at their capacity, and cannot accommodate any new members with the existing facilities. Three groups reported that a total of 80 additional participants could be accommodated now in existing programs.

As previously discussed, the age composition of Hamilton's aquatic club membership leans heavily towards children and youth, and the future ability to attract participants to existing competitive programs is likely to be limited to some degree by an aging population structure as well as a relatively small market for these types of activities. Consequently, realizing the level of participation suggested by reported increases in pool use would likely require active recruitment efforts by the clubs to expand membership in existing programs, and new program development to establish competitive activity among older age groups.

It appears that locally-based demand for a separate diving pool would leave a considerable amount of unscheduled time in this facility. Without an assessment of regional demand for specialized diving facilities, it is not possible to determine the extent to which local use of a diving pool might be supplemented by that from clubs based outside Hamilton. Information provided by the Ontario Springboard Diving Association indicates that, although there is a definite need for more ten metre diving platforms, available facilities are otherwise adequate. Although the provision of a separate diving pool at an aquatic complex in Hamilton could improve the supply of facilities in the region, information on local club use suggests that these hours could be accommodated in a 50 metre competitive pool with appropriate diving facilities. The addition of diving club use to that reported for a 50 metre pool would also contribute to higher levels of use for this component of the complex. Assuming that diving occurs in the 50 metre pool, the annual projected use of the facility is shown in Figure Three.

This calculation assumes that the entire 50 metre pool is used for the diving club's activities. As such, these figures over-estimate the extent of pool use.

Figure 3
Annual Hours of Aquatic Facility Use by Clubs Without a Diving Pool

<i>Facility</i>	<i>Total Hours Requested</i>		<i>% of Available Hours</i>	
	<i>Prime</i>	<i>Non-Prime</i>	<i>Prime</i>	<i>Non-Prime</i>
50 m Competitive/ Training Pool	2861.5	2183.5	85%	84%
50 m Warm-up Pool	1076.0	832.0	32%	32%

6.2 Use for Aquatic Competitions/Meets

Our estimates of use of the Hamilton facility for aquatic competitions and meets was based on the clubs' expectations of the potential to host such events, and contact with provincial aquatic associations regarding the need for competitive-scale facilities. Based on information provided by three aquatic associations, it is estimated that there may be as many as 36 provincial and national meets per year for diving, swimming, synchronized swimming and water polo. Regional meets in the Toronto area may represent up to 25 additional events per year. It was indicated, however, that regulation, competitive-scale facilities are necessary for most national meets, but would not be necessary for regional meets. The number of meets at all levels varies from year to year, and is at least partially dependent on the availability of suitable, affordably-priced facilities.

Two of the associations indicated that meets are now held at the Etobicoke Olympium and the University of Toronto. All three representatives agreed that improved facilities in the area would be desirable. The Amateur Swimming Association specifically noted that existing facilities are inadequate in terms of both number and design and that, assuming a new facility in Hamilton met design requirements for provincial championship competitions, it would be extremely well used for these activities.

Collectively, Hamilton aquatic clubs reported that, in the past year, they had participated in 50 aquatic competitions for meets, including two provincial championships, one national championship meet, four invitational tournaments, six regional events, and one city-wide meet. It was also noted that some of these meets were held in Canadian cities outside Ontario, or in the United States. Two groups had hosted events at pools in the area. Four groups indicated that, if appropriate facilities were made available in Hamilton, they could host at least 23 meets per year ranging from local to national competition and including invitational and international tournaments.

For a number of reasons, it is not possible to arrive at a firm conclusion on the number of aquatic competitions and meets that would occur at a new complex in Hamilton. As noted earlier, the number of events that actually take place varies from year to year. The locations selected are also influenced by a range of variables that cannot be predicted. These include factors such as facility availability and suitability, cost, and the number of bidders involved. A detailed assessment of the regional supply and demand for competitive-scale facilities would also be required to arrive at some indication of how many events it would be reasonable to anticipate for the Hamilton facility in view of competition presented by other existing and proposed complexes in the area.

If we assume that the Etobicoke Olympium and the Brant Aquatic Centre would represent major competitors to a Hamilton facility, we can speculate that each will capture approximately one-third of the potential market for competitions and meets. In a typical year, there may be as many as 60 national, provincial and regional com-

petitions/meets that might be attracted to a Hamilton facility and its "market share", therefore, would represent approximately 20 events per year. This figure compares favorably to the aquatic club's expectations regarding the potential to host such activities, and reported use of the Etobicoke Olympium for competitions and meets. This facility accommodates roughly 20 events per year ranging from local to national competitions. The duration of these events would vary, but for the purposes of this assessment we have assumed 300 hours annually would be committed to meets at the facility. These hours are reflected in Figure Four. The data in Figure Four also assume that both the main pool and warm-up pool are used for these meets. Both pools would not be required for some of the meets and, as such, these data overestimate the extent of pool use.

Figure 4
Annual Hours of Aquatic Facility Use by Clubs - Including Meets

<i>Facility</i>	<i>Total Hours Requested</i>		<i>% of Available Hours</i>	
	<i>Prime</i>	<i>Non-Prime</i>	<i>Prime</i>	<i>Non-Prime</i>
50 m Competitive/ Training Pool	3161.5	2183.5	94%	84%
50 m Warm-up Pool	1376.0	832.0	41%	32%

The data in Figure Four suggest that a 50 metre competitive pool would be used close to capacity in prime and non-prime time by Hamilton's aquatic clubs and schools. A 50 metre warm-up pool in the same complex would not be well used by the competitive groups and would have considerable time available for general public use. The levels of use projected will be realized if:

- . levels of participation in competitive aquatic programs expand significantly.
- . scheduling conflicts in prime time can be avoided so that all clubs are able to maximize their use of the facility.
- . pricing policies do not restrict access to the facility for some groups.
- . the two 50 metre pools are scheduled in a manner that maximizes the user's exclusive use of the facility; this would presumably have significant cost implications.

These considerations suggest that the projects in Figure Four are probably optimistic. The possibilities for new program development and a regional market draw have not

been considered in our projections of use and these factors may help to balance projection. In order to confirm the assumptions underlying the projections further information would be required on public demand for expanded aquatic programming, the regional market and the operating policies of the proposed facility. Based on available information, however, Figure Four is our best estimate of the projected use of the facility. As noted earlier, the projected use shows high levels of competitive group use and near capacity use of the 50 metre training pool. The overall use of the facility, and particularly adequate use of the 50 metre warm-up pool, will depend on levels of general public use for recreational and instructional swimming. This issue is discussed in the next section of the report.

6.3 Community Use

Our projections of facility use by aquatic clubs revealed that a 50 metre competitive/training pool would be well-used, subject to previously noted assumptions and considerations. A 50 metre warm-up pool would be used well below capacity, leaving a considerable amount of time for which additional, frequent use would be required to support it. Group use of both 50 metre pools, however, could be supplemented by community use for aquatic programming and recreational swimming. The potential to generate community use of an aquatic complex is discussed below, under the following major headings:

- . factors indicating the existing supply of pools do not adequately serve the demand for recreational swimming.
- . factors indicating the existing supply of pools adequately serve the demand for recreational swimming.

Since the scope of this study did not include a community survey to establish potential resident use of new aquatic facilities in Hamilton, our assessment is based on limited information including national and provincial statistics on swimming participation levels, inventory data on existing pools, the experience of other municipalities, and background information provided by the City. Consequently, we can only identify gross indicators of potential community use of an aquatic complex since public demand for its provision has not been firmly established.

6.3.1 Factors Indicating The Existing Supply of Pools Do Not Adequately Serve the Demand for Recreational Swimming.

The following considerations suggest there may be outstanding public demand for recreational swimming in Hamilton:

- . a comparison of existing pool use to projections based on national and provincial statistics
- . reported use of existing pools

- . the potential to introduce a leisure pool and encourage increased recreational swimming
- . the potential for new program development
- . the potential closure of existing pools/the new facility's location

National/Provincial Projections and Existing Pool Use

Based on information provided by the City and that collected through the pool inventory it is estimated that, excluding school-related use, indoor pools in the City attract a total of 873,690 visits per year of which an average of 96% or 838,740 trips are accounted for by City residents. Provincial and national statistics on swimming activity patterns,¹¹ however, indicate that Hamilton's population base could generate up to 1,150,000 annual visits to public indoor pools or a 32% increase over current levels of activity. These findings suggest that the availability and capacity use of existing pools is restricting community participation in swimming and that if additional facilities became available, unmet demand could be accommodated.

These provincial and national data provide a very crude indication of swimming demand and cannot be assumed to necessarily apply to Hamilton. Nevertheless, when considered in conjunction with data from the pool inventory indicating demand for use that cannot be accommodated and trends toward increasing participation in aquatic activities, this information suggests some level of unmet demand for recreational swimming.

The Development of a Leisure Pool

It may be possible to generate a significant level of community use of a 50 metre pool in a new aquatic complex by designing it as a leisure pool to provide amenities that would encourage recreational swimming.

A report by Aquatic Consultants Incorporated notes that use of the Wild Water Works and Lakeland outdoor pools by Hamilton residents averages between 1,068 and 1,513 visits per day during the summer months. The upper end of this range exceeds the average daily attendance at the City's municipal indoor pool by approximately 1,100 visits. It was indicated that Hamilton pools provide a maximum of 20% of their operating hours for recreational swimming and that this represents restrictions on the potential to generate significantly higher levels of pool use, particularly during the off-season for outdoor pools, as evidence by

¹¹ Sources: Fitness Canada, Canada Fitness Survey: Survey Highlights, Ottawa, Ontario, 1983. Statistics Canada, Travel, Tourism and Outdoor Recreation, 1976 and 1977. Tourism and Outdoor Recreation Planning Study Committee, Ontario Recreation Survey, Tourism and Recreational Behaviour of Ontario Residents, Volume 2: Demographics, Queen's Park, October 1977.

local residents use of the above-noted pools. Given that average 1,000 - 1,500 Hamilton residents swim daily at these outdoor pools in summer, this clearly indicates local demand for high quality recreational swimming opportunities.¹²

The experience of other municipalities that have provided leisure pools is also instructive. Although not directly comparable to the facilities being considered for Hamilton, the Douglas Snow Aquatic Centre in North York is a good example of a City-serving leisure pool that is unique among the supply of indoor pools in the municipality. In this sense, it would be similar to a new leisure-oriented facility in Hamilton. Contact with the City of North York revealed that the Douglas Snow pool attracts approximately 250,000 visits per year (ie., 5,000 visits per week) for public swimming and that this level of use has remained fairly constant since the pool opened. Only a slight decline in public swimming attendance has occurred to date. In addition, most of this use comprises new activity that has occurred in response to the pool's development. Although existing, traditional pools in North York may have experienced some losses in use due to the availability of newer, more attractive facilities at Douglas Snow, it appears that any such declines have been minimal and have not significantly affected their operations. It was also reported that the Aquatic Centre is heavily promoted, particularly since it is the only municipal pool at which a fee is charged for public swimming.

Although this information suggest that the development of a leisure pool in Hamilton could generate new use for recreational swimming, the following points should be noted:

- . The Wild Water Works and Lakeland Pool are not comparable facilities and their use does not necessarily represent use that would occur at a municipal indoor leisure pool.
- . There is not overall assessment of demand for recreational swimming that would indicate whether or not the Wild Water Works, or other pools, are adequately serving the Hamilton Market.
- . At the Douglas Snow Aquatic Centre in North York, emphasis is placed on general community use, and approximately 75% of available time is scheduled for this purpose (i.e., public swimming and lessons). The design and marketing of an aquatic complex in Hamilton, and the proportion of time made available for public use, would have a significant influence on its potential to attract recreational use. If, at the Hamilton facility, the proportion of unscheduled time (i.e., non-group time) committed to public swimming was similar to that at Douglas Snow, this would represent roughly 42 hours per week during the peak week. At a similar rate of attraction, therefore, we would anticipate up to

¹² All data in preceding paragraph from an untitled report by Aquatic Consultants Incorporated, 1987.

5,200 visits per week for public swimming. The supply of publicly accessible indoor pools in North York, however, is 1 for every 29,280 population which is noticeable below Hamilton's ratio of 1:19,200. North York's indoor pool supply displays similar characteristics to that of Hamilton, with a predominance of school pools, a YMCA pool and two pools that are available full-time for community use. Public access to indoor pools in North York, therefore, is probably more restricted than is the case in Hamilton and this situation may contribute to the levels of attendance experienced at Douglas Snow. There is no way of knowing if Hamilton's experience will be comparable to North York's should a new leisure pool be provided.

New Program Potential

City staff provided suggestions regarding the potential use of a new aquatic facility for municipal programs and activities. It is felt that there is a large market for pre-school swim programs and that these could be offered at a new pool during non-prime time. It was also indicated that a complex of this nature could be used by the City for advanced lifeguard training and competition. These activities apparently cannot be accommodated elsewhere. No estimate of the actual hours of projected use was provided.

Possible Pool Closures/Facility Location

The possible closing of Huntington Park would represent up to 62.5 weekly hours of community use that could be transferred to a new facility, assuming it was located to serve these users. If the new facility was located on the Mountain where new population growth is anticipated, higher levels of recreational use could be expected.

6.3.2 Factors Indicating the Existing Supply of Pools Adequately Serve the Demand for Recreational Swimming.

Comparisons of Hamilton's pool supply to that of other municipalities do not appear to support the need for additional facilities for recreational swimming. The City's Culture and Recreation Master Plan provides no information that is directly relevant to the demand for aquatic facilities.

The provision of indoor pools in Hamilton is comparable to that of other municipalities. This total supply of indoor pools represents a ratio of one for every 19,200 population and municipal pools are supplied at a ratio of one for every 25,600 people. A pool supply ratio in the range of 1:15,000 to 1:25,000 population is not unusual in major urban centres. This obviously is a very crude measure of facility adequacy. Most municipalities prepare Master Plans for more detailed analysis of their recreational needs.

According to City staff, Hamilton's Culture and Recreation Master Plan (May 1985) did not deal with the question of future facility requirements. Background documents prepared for the Plan¹³ using the provincial standard of one indoor pool for every 20,000 population, noted facility surpluses in a number of Hamilton communities and only one community with a deficit in indoor pool provision. Provincial standards of this type cannot recognize locally-specific variables that influence the need for new facilities in individual communities. Data on factors such as the availability and use of existing pools, and public demand for participation in aquatic activities and programs are essential to concluding whether or not the existing supply of indoor pools satisfies community leisure needs. The Master Plan, however, does not address these considerations and reaches no conclusions concerning the need for indoor pool development. Information is also not available from other sources to assess the demand for expanded recreational swimming opportunities.

The Master Plan does recommend that the Department of Culture and Recreation "increase its support and assistance to elite amateur sports" in a number of ways, including, "provision of new facilities".¹⁴ The Master Plan also recommends the "the primary focus for the Department should be to respond to the recreational amateur activity facility requirements before those of the elite. However, wherever possible facilities should be designed to accommodate both user groups."¹⁵

Conclusion

Anticipated levels of public, recreational use of new swimming facilities cannot be reliably predicted with available information. Based on available information, however, it is our expectation that in addition to organized use of a new aquatic complex in Hamilton, a significant level of community use of a leisure pool could result if the facility is well marketed and accessible to residents. This use could supplement club use and so improve the market's ability to support the scale of development being considered. While it is not possible to predict the actual hours of use that could be committed to recreational swimming, the 50 metre warm-up pool would have to attract about 95% of the recreational use of the North York pool to be used to capacity in prime time. This may not be possible given the higher supply of pools in Hamilton, as discussed earlier. Consequently, it would appear that some prime-time in the warm-up pool would be available and that this facility would be under utilized during non-prime time.

¹³ City of Hamilton Master Plan for Culture and Recreation, Background Data, November 1981, Table 4B.

¹⁴ City of Hamilton, Culture and Recreation Master Plan, p. 35.

¹⁵ Ibid, p. 74.

7.0 SPACE PROGRAM

1. Main Pool	Sq.Ft.
. 51 m x 10 lanes @ 2.5 m . Pool depth varies from 5 m to 1.8 m . One diving tower with 10 m, 7.5 m, 5 m and 3 m platforms . Two 3 m and two 1 m springboards . Sufficient water volume to accommodate - Water polo 30 m x 20 m x 1.8 m deep - Synchronized swimming 12 m x 12 m x 3 m deep - Diving 20 m x 15 m x 5 m deep . Ceiling height is 13.4 m minimum above the 10 m tower . Movable bulkhead and electronic timing . Bubble machine	13,724
2. Warm-up/Wave Pool	16,000
. Swimming training water area 51 m x 6 lanes @ 2.5 m + 0.5 m buffers . Pool depth varies from 2.4 m to 1.8 m . Shallow water area 1.8 m to 0 . Wave machine . Movable bulkhead . Hydraulic floor/hydraulic wall . Lagoon for water slides	
3. Whirlpool, Jetted Tubs	400
4. Deck Area	25,000
. Minimum 5 m at both ends of main pool . Minimum 3 m at both sides of main pool . Minimum 1.8 m around warm-up pool . Play area . Space for 1500 temporary seats	
5. Change Rooms	
. 2 group change rooms and 2 team rooms . Lockers . Family change rooms 4 @ 80 sq.ft. . W.C./showers/drying area . Saunas	5,000 1,000 320 2,500 200

6. Supervision

. Technical monitor area	250
. First aid room	120
. Staff change rooms	200
. Staff room	150
. Raft rental/storage room	500

7. Competition Support Facilities 6000

. Resistance training	1000
. Exercise room	3000
. Officials' marshalling area	1000
. Press room	300
. Electronic Timers' Room	200
. Computer Room	500

8. Sport Administrative Centre

. Sport group offices 12 @ 120 sq.ft.	1,440
. Sport coordinator's office	250
. Boardroom	400
. Meeting rooms 2 @ 150 sq.ft.	300
. Secretarial/storage	400
. Seminar Rooms 3 @ 750 sq.ft.	2,250

9. Sports Medicine Clinic 2,000

10. Management

. Info/ticket	250
. Pro shop	200
. Manager's office	300
. Staff offices 6 @ 120 sq.ft.	720
. General office area/storage/meeting rooms/reception	2,000

11. Public Facilities

. Lobby	2,000
. Restaurant/snack bar	2,200
. Seating	
. Kitchen/storage	

B. FINANCIAL CONSIDERATIONS

. W.C.	
. Seating for 1500 permanent seats	7,000
. Seating for 1500 temporary seats	-
. Washrooms	
. Children's room	400
. Multi-purpose rooms 2 @ 1000 sq.ft.	2,000
12. Service and Storage	
. Pool storage	3,000
. General storage	1,000
. Chemicals rooms	300
. Filter room	2,500
. Wave machine room	600
Total Net Assigned Area (75%)	102,874 sq.ft.
Total Gross Floor Area (100%)	137,165 sq.ft.

A. Building Construction Cost	\$27,500,000
B. Site Development Allowance	
10% of Building Construction Cost	\$2,750,000
Including roads and parking, storm and sanitary sewers, landscaping, storm drainage, lighting and signage	
C. Total Construction Cost (A+B)	\$30,250,000
D. Furniture, Fixtures and Equipment Allowance	
10% of C	\$3,025,000
E. Contingencies	
10% of C	\$3,025,000
F. Professional Fees and Expenses	
10% of C including architect, civil and mechanical fees, including permits	
G. Total Project Cost	\$39,300,000

8.0 FINANCIAL CONSIDERATIONS

8.1 Capital Cost Estimate

The following Order of Magnitude estimate is intended to provide a very approximate assessment of direct and indirect construction costs for the proposed aquatic facilities. They represent construction cost in Spring 1988 dollars, and reflect the conceptual level of the design schematics.

Excluded from the costs are the following:

- . escalation beyond Spring 1988.
- . cost for unusual foundations or soil conditions
- . administration costs - legal, fees, insurance, owners staff and associated management fees
- . financing costs
- . land acquisition costs, if applicable

Order of Magnitude costs were determined by applying current construction costs to area estimates derived from the conceptual diagrams. These diagrams are conceptual in nature, and the areas only represent preliminary assumptions. Total costs are rounded up to the nearest \$100,000.

A. Building Construction Cost

137,000 sq.ft. @ \$160	\$21,920,000
------------------------	--------------

B. Site Development Allowance

5% of Building Construction Cost	\$1,096,000
(including roads and parking, normal site utilities hook-up, landscaping, storm drainage, lighting and signage).	

C. Total Construction Cost (A + B)	<u>\$23,016,000</u>
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D. Furniture, Furnishings and Movable Equipment Allowance

7% of C	\$1,611,000
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E. Contingencies

10% of C	\$2,302,000
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F. Professional Fees and Expenses

10% of C (including survey, soil test, consultants fees, building permits, etc.)	\$2,302,000
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G. Total Project Cost	<u>\$29,231,000</u>
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8.0 FINANCIAL CONSIDERATIONS

8.1 Capital Cost Estimate

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Excluded from the costs are the following:

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D. Furniture, Furnishings and Movable Equipment Allowance

7% of C	\$1,611,000
---------	-------------

E. Contingencies

10% of C	\$2,302,000
----------	-------------

F. Professional Fees and Expenses

10% of C (including survey, soil test, consultants fees, building permits, etc.)	\$2,302,000
--	-------------

G. Total Project Cost	<u>\$29,231,000</u>
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8.2 Potential Funding Sources

The Capital Grants for New Recreation Facilities Program (Wintario funding) of the Ministry of Tourism and Recreation (MTR) is the major provincial funding program available for projects of this type in Ontario. Enriched funding may also be available from other sources if the project is deemed eligible. Federal capital assistance may be available if the facility is provided to host events such as the Canada or Commonwealth Games. Funding for highly specialized facilities, however, normally requires negotiation and eligibility is determined on a case-by-case basis. Current information regarding potential funding sources should be obtained when the City is prepared to proceed with the project.

8.3 Operating Cost Estimate

Total operating costs cannot be accurately estimated with available information. Operating costs will be very dependent on the final design concept, the actual levels and type of use, and, more importantly, the management practices adopted for the facility. We have attempted to estimate operating costs in this section of the report based on comparable cases. This approach has limitations because costs for directly comparable facilities are seldom available and data which are available for reasonably similar facilities reflect differences in management and accounting practices from one municipality to another.

Despite these limitations, an estimate of the overall operating cost of the proposed facility has been determined based on an average for the following three facilities:

- . Kinsmen Park Aquatic Centre, Edmonton
- . Douglas Snow Aquatic Centre, North York
- . Etobicoke Olympium

The Kinsmen Aquatic Centre is slightly larger than the proposed Hamilton facility. Aquatic facilities include two 50 metre pools, a separate diving pool and a therapeutic pool. It also includes racquet and fitness/health club facilities, sauna, seating capacity for 4,700, field house, meeting space and offices. Operating costs for this complex include those for all facility components. The Douglas Snow Aquatic Centre in North York is smaller than the proposed Hamilton complex and comprises a 50 metre pool, wading pool, therapeutic pool, 120 seat capacity spectator gallery, sauna and meeting space. Although this facility is part of a larger municipal government complex, operating costs for the aquatic component alone were available. In addition to a 50 metre competitive pool and a 25 metre warm-up pool, the Etobicoke Olympium includes a double gymnasium and sport hall, a fitness centre and clinic, 1,500 seats, and meeting rooms. As such, it is larger than the facility being considered for Hamilton. Operating costs for this complex include those for all facility components.

While these facilities are not directly comparable to the proposed Hamilton aquatic complex, they do provide a basis for estimating operating costs. The size, annual gross operating costs and the resulting costs per square foot for each of these facilities is listed below.

<i>Facility</i>	<i>Size Total (sq.ft.)</i>	<i>Annual Gross Operating Cost</i>	<i>Gross Operating Cost Per Square Foot</i>
Kinsmen Park	172,000	\$1,800,000	\$10.47
Douglas Snow	40,670	\$ 437,000	\$10.75
Etobicoke Olympium	120,000	\$2,000,000	\$16.67

The annual square footage operating costs of these facilities averages \$12.63. Applying this figure to the proposed Hamilton facility at 136,000 square feet¹⁶ suggests an annual gross operating cost of approximately \$1.7 million.

¹⁶ Represents square footage of aquatic facilities only. Does not include office/administrative/meeting space, and complementary facilities such as weight training area and a sports medicine clinic.

9.0 SITE STUDY

In addition to the Terms of Reference and pursuant to the commission of the Study, the Consultants were asked to visit three potential sites to provide a general review of the desirability of each.

The three sites are:

- Site 1: Mohawk Sports Park
- Site 2: McQuesten Park
- Site 3: Sheldon Neighborhood

The sites as identified on the attached maps were evaluated in accordance with the following main criteria in general terms. Other criteria such as the history, original intended uses and the area residents' preference which would affect the availability of the sites were not included in the analysis as these sites were already identified by the Department of Culture and Recreation as available for the construction of the aquatic facilities and therefore should only be judged from the physical points of view.

1. Location

- The Aquatic Facility should be conveniently located in the community it serves. It would also be desirable if the Facility is located in close proximity to other public establishments which generate volume traffic, thereby enhancing the Facility's visibility to the public and boosting its attendance. Establishments such as shopping centres or other recreation facilities would be complementary to the Indoor Aquatic Facility. They can effect "drop-in" traffic as well as providing a full range of amenities to complement the recreation functions in the Aquatic Facility.
- A considerable proportion of the users of the Aquatic Facility will be children who usually walk or bicycle to the Facility in summer but get dropped off and picked up in inclement weather. Family users normally come by cars and, to a smaller degree, by public transit. The site should be well served by these transportation modes.
- Checklist:
 - conveniently located to serve the City residents
 - character of neighborhood
 - acceptable travel time
 - easily reached by car - highways and arteries, existing and planned, ingress and egress, number of curb cuts allowed
 - easy access by service vehicles
 - easy access by public transit - buses, fares and schedules, holiday schedules, dependability, existing and planned routes
 - approach - traffic conditions, stop lights, traffic hazards, busy

intersections.

- . distance of site access from intersection
- . planned street widening, dedication, improvements and restrictions
- . existing and planned side walk and street lights
- . factors that would affect site development costs
- . existing structures on site - demolition costs, demolition control, historical designation

2. Land Area

- . The approximate site coverage as indicated by the conceptual floor plan is slightly less than 3.5 acres.
- . The City of Hamilton does not have a specific parking requirement for sports and recreation facilities. Upon consultation with the Department of Planning and Development it was felt that the parking ratio for places of assembly should be adopted, which would require 1 space per 6 persons who may be lawfully accommodated in the premises. The Aquatic Facility provides seating for 3000 spectators. Using a rule-of-thumb calculation rather than the sq. ft. per person formulas as per OBC for different occupancies in each room, we estimate that the peak occupancy in the Aquatic Facility to be about 4000 people, or 670 parking spaces required. At 350 sq. ft. per space plus drives for entrance to the parking lot, this converts to about 5.5 acres of land.
- . While there is no hard rule for the amount of landscaped and open space to be provided on site, it is desirable to have as much green space as possible to create a pleasant setting for the Aquatic Facility. The zoning bylaw governing the site will set the minimum landscaped area requirement.
- . The total area required for the building, parking and landscaped area would be approximately 12 acres. Should future addition of various recreation facilities be contemplated on site (e.g., picnic area, parkland, etc.) additional land would be required beyond the 12 acres. Acquisition of the additional land can also be planned in stages if the land can be available in stages as well.

3. Land Cost and Site Development Cost

- . The cost of acquisition of the potential site could be a major portion of the total project cost if the site is to be purchased. Several sites should be surveyed and the prices carefully balanced in order to get the best value for the dollar.
- . Associated with each site is its development cost. This cost varies widely depending on the site's suitability. Difficult sites could cost less in acquisition but their extensive development costs could run as high as 30% of the cost of the building itself. The development of urban sites can run about 5% of the building

cost while suburban sites run about 15%. On the average, site development costs vary between 10% to 15% of the cost of the building.

Site development includes work required on the site beyond five feet from the edge of the building: grading and fill, fencing, roads and parking, utilities hook-up, landscape development, walks, site lighting, street furniture, signage, on-site sewage treatment plant, unusual foundation conditions.

4. Zoning and Property Development Requirements

The zoning classification of the site should allow the construction of the Indoor Aquatic Facility. Should the designated use of the land be incompatible it is possible to apply for variance or rezoning. The Department of Planning and Development should be consulted to explore such possibilities before the land is purchased. The rezoning process necessitates certain amount of time which should be allowed for in the project development schedule.

The zoning classification of adjacent properties should also be noted. Any future incompatible uses in the area should be identified.

It should also be identified whether the site is under Development Control. This process gives the City Council the opportunity to examine the nature of the development and its impact on the pedestrians and immediate neighborhood. Elements such as accessways, off-street parking, loading, pedestrian walkways, landscaping and garbage storage areas will be reviewed. The process will require considerable amount of time which should be accommodated in the project schedule as well.

Checklist:

- . zoning classification
- . Is the Indoor Aquatic Facility allowed under the present zone?
- . Is Rezoning required? procedure and time required.
- . any variances required
- . maximum development density
- . maximum site coverage (footprint)
- . maximum building height
- . building setbacks - front, side, rear
- . adjacent zones - front, side, rear; compatibility, future rezoning
- . landscapes open space requirements
- . signage, fencing, parking and loading requirements
- . special restrictions
- . Development Control and procedure
- . Development Control requirements - material, landscape strip, fencing
- . development levies and dedication

- . Traffic Study required?
- . Environmental Impact study required?

5. Landform

- . The landform should facilitate the programming of the Aquatic Facility. Gently sloping land is desirable. Land on steep slopes of 15% or more is difficult to develop. Extensive site development would be required and the cost involved can be high.
- . Checklist:
 - . acquire topographical survey, note high points and low points, valleys, plateaus and slopes.
 - . Does the site require, cut, fill, or both?
 - . Is extensive grading required?
 - . Percentage of usable land area.
 - . Land of 5-10% slope (min. 1%, max. 15%) are most suitable for building development.
 - . Outdoor recreation land of 4-10% gradient lends itself to informal movement and activity. Land steeper than 10% is suitable for hill sports or free play.
 - . Slopes in excess of 50% gradient are liable to erosion and would require reinforcement by terracing or cribbing.
 - . Identify drainage patterns.
 - . Will drainage of adjoining properties affect the subject site or vice versa?
 - . Will overland flow be acceptable or will on site collection points and underground piping be required, or a combination of both?
 - . Will water retention ponds be required?

6. Soil and Ground Water

- . The soil type on the site, its ability to support the load and its ability to drain are important to the construction of the physical structure. A soil boring test should be executed prior to decisions made on the acquisition of a site. The test involves boring of holes on strategic points on the site. Soil profiles are extracted and analyzed to reveal the thickness, types and depth of topsoil and subsoil. The depth to solid bearings and presence of underground water and boulders can also be ascertained at this stage to avoid excavation problems in the future. All these findings will determine the development possibility of the site.
- . The water table is an underground plane below which the soil is saturated with water. Its depth below ground varies widely. A high water table poses problems for excavation, and floods basements and utilities. There are several clues which suggest the presence of a high water table - water level in existing wells, seeps and springs, presence of willows, poplars, reeds and other water-loving vegetation,

and marks of previous floods on tree trunks, banks or stones. This is not an issue for any sites on the mountain.

. Checklist:

- . Evidence of outcropping or rock formations.
- . Evidence of problems with surface or subsurface drainage, flooding or high water table.
- . Unusual conditions on neighboring sites which may indicate problems affecting the subject site.
- . Availability of soil test.
- . Anticipated sub-soil conditions.
- . Depth of water table; avoid siting structures over water tables less than 6 or 8 ft. below ground.
- . Extent of flood plane, jurisdiction of the regional conservation authority, special requirements, limitations and approvals.
- . Possibility of use of land on flood plane for outdoor recreation.

7. Utilities

- . Adequate utilities should be available to support the present and future needs of the planned facility. Sites with readily available street services for hook-up can contribute to significant savings in the cost of site developments. Individual support systems such as sewage disposal plants, power plants and water wells can be expensive.

. Checklist:

- . Utilities availability and location.
- . Cost of extension and hook-up.
- . Relocation of existing lines crossing the site.
- . Existing utility easements on site.
- . Division of construction responsibility between the owner and the utility companies.
- . Electricity - overhead, underground.
- . Telephone - overhead, underground.
- . Gas - limit.
- . Water - water mains, fire hydrants, flow test data.
- . Sanitary sewer - restriction on use, requirement for lift station, requirement for sewage metering, sewage charge.
- . Storm sewer - extent of surface drainage allowed, storm management study, storm retention and/or leaching, street improvements (catch basins, curb inlets, etc.)
- . Cable TV, mail delivery.
- . Garbage pick-up, snow removal.

8. Aesthetics

- . Identify aesthetic features in the landscape - trees, shrubs, woods, streams, rivers, waterfront, valleys, cliffs, boulders, etc.
- . Identify scenic vistas, viewpoints and view directions. Orientation of the building, access drive and outdoor recreation facilities can all take advantage of the views.

9. Pollution

- . Pollution of the senses - sight, sound, smell - are annoying, and pollution of the elements - air, water - can be harmful to the health. The pollution of space by people - loitering, littering, vandalism - is a nuisance for facility operators and patrons alike. Locating the facility away from the sources of pollution can avoid future maintenance problems. Careful site development such as spaces that discourage loitering, sturdy materials that resist vandalism, visual barriers that avoid undesirable views, or buffers that muffle noises can remedy many of these problems.
- . Visual pollution - power lines, parking lots, highways, factories, junk-yards, outdoor storage yards.
- . Noise pollution - heavy auto traffic, factories, railways, airports.
- . Air pollution - automobile exhausts, industrial effluents, incinerators, smokestacks, domestic heating plants.
- . Water pollution - untreated sewage, decaying vegetation, erosion, industrial wastes, garbage.
- . Space pollution - littering, vandalism, loitering.

10. Public Safety

- . Public control is part of the life support system which is vital to the safety of facility patrons. The availability and adequacy of these services are as important as their accessibility. Rural sites can be far beyond the reach of public protection. The condition of access roads to the property should be checked to ensure its accessibility.
- . Availability of hospital, fire and police services.
- . Distance of the site from these services.

-
-
- . Availability of ambulance service.
 - . Conditions of access - trucks cannot negotiate sharp turns and steep slopes. Roads should be wide enough and strong enough to support heavy vehicles. Bridges should also be wide enough and designed for vehicular use.
 - . Cost of reinforcing public control - vandal and burglar alarms, fire protection, emergency or disaster services.

11. Plant Material and Wildlife

- . Plant Material can be used to enhance the aesthetics of the site and the building, buffer noises, articulate space, block wind, shade the buildings, control glare and perform various tasks. The development on the site should take advantage of the existing ground coverage and avoid unnecessary disturbance to the vegetation and wildlife habitat. Dangerous flora and animals on the site should be controlled.
- . Location, types and density of vegetation and wildlife on site should be identified from aerial photos and site inventory. The impact of the development on the site environment should be noted. Recreation programme potential for nature trails, picnic sites, etc., should be explored.

Site 1: Mohawk Sports Park

- . 24 acres section between the CN railway tracks and the Mountain Brow Boulevard
- . Site will be serviced around 1990. Existing utilities are along Limeridge Road
- . Current A zoning allows the construction of the Aquatic Facility
- . Residential development on 3 sides
- . Part of the 135 acre Park, adjacent to the large Kings Forest Park
- . The railway tracks now bisecting the Park will be converted to bike trails in the near future
- . The proposed East-West/North-South Transportation corridor to be constructed in the 1990's will provide convenient access to the site from QEW and Highway 403
- . The use of the Park is compatible with the nature of the Aquatic Facility
- . The site is surrounded by arterial streets on all four sides, which will minimize traffic congestion opportunities
- . The site commands pleasant vistas of the parkland, the Hamilton skyline and view of the lower City

Site 2: McQuesten Park

- . 40 acres, south of Limeridge Mall
- . Site services available now
- . Planned as the 'Gage Park of the Mountain'
- . Half of the site is zoned AA which will need to be rezoned to A as on the other half to allow construction of the Aquatic Facility
- . New subdivision on west and south of the site
- . The Limeridge Mall across the street will provide all the amenities needed by the spectators and athletes
- . It is uncertain whether the Mall's parking lot will benefit the Aquatic Facility patrons now that Sunday shopping may become a reality pending on the City's review

could?

-
-
- . The construction of the East-West corridor will provide convenient access to the site
 - . Upper Wentworth will be the access road to the site
 - . The site is highly visible from Limeridge Road and the future expressway
 - . Hydro right-of-way runs along the east boundary of the site

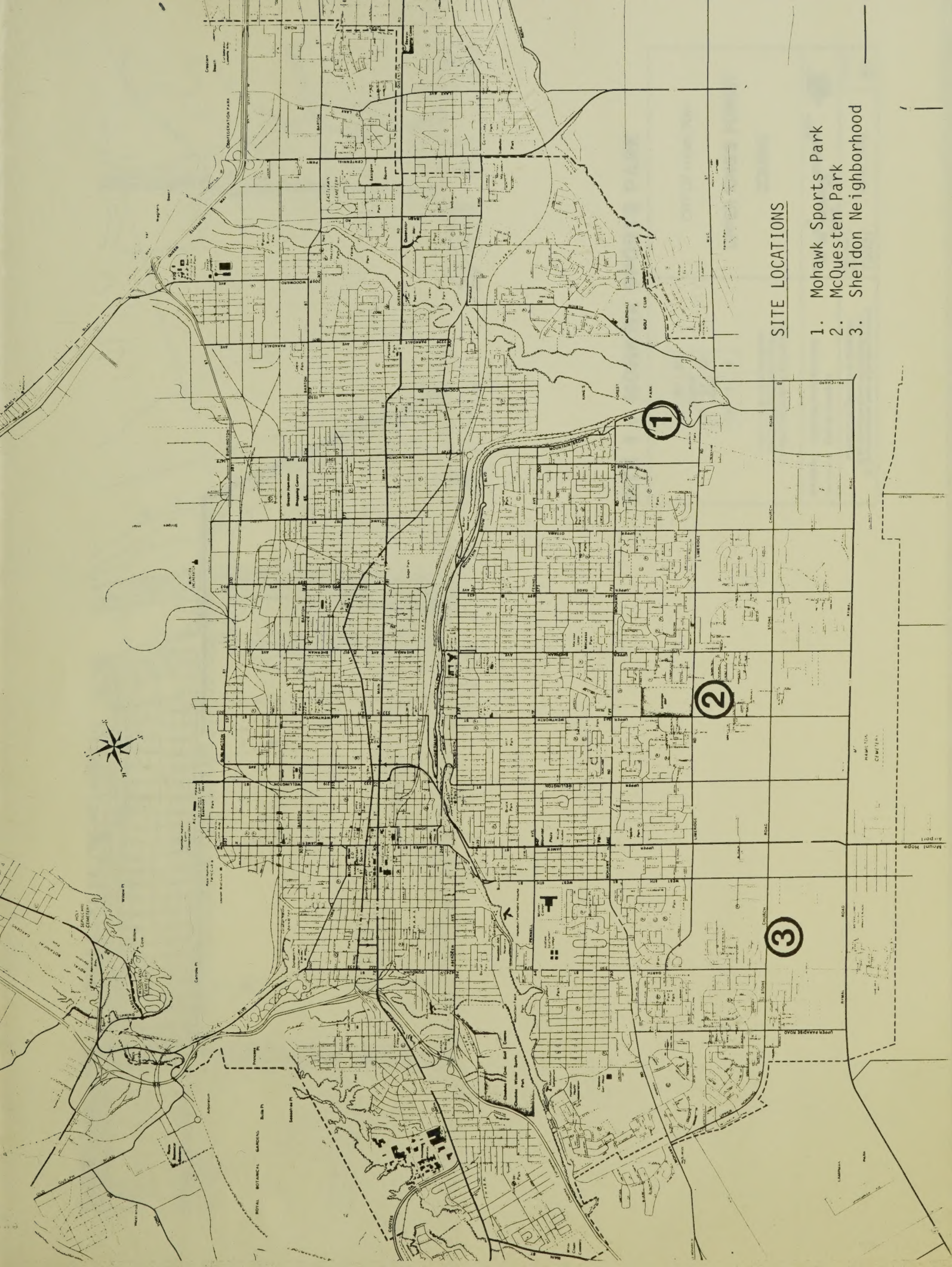
Site 3: Sheldon Neighborhood

- . 15 acres
- . South of Stone Church Road between West 5th and Garth
- . Current zoning is AA. Rezoning will be required. Neighborhood plan for the area has not been developed as yet.
- . Site will be serviced in the early 1990's
- . Access may be off Stone Church Road or Garth Street
- . Suburban single family detached houses and farmland around the site
- . The site is located at the southern edge of the City and is in a relatively undeveloped area. The surrounding road system will have to be upgraded to serve the Facility
- . Present public transit access to the site is inconvenient

Conclusion

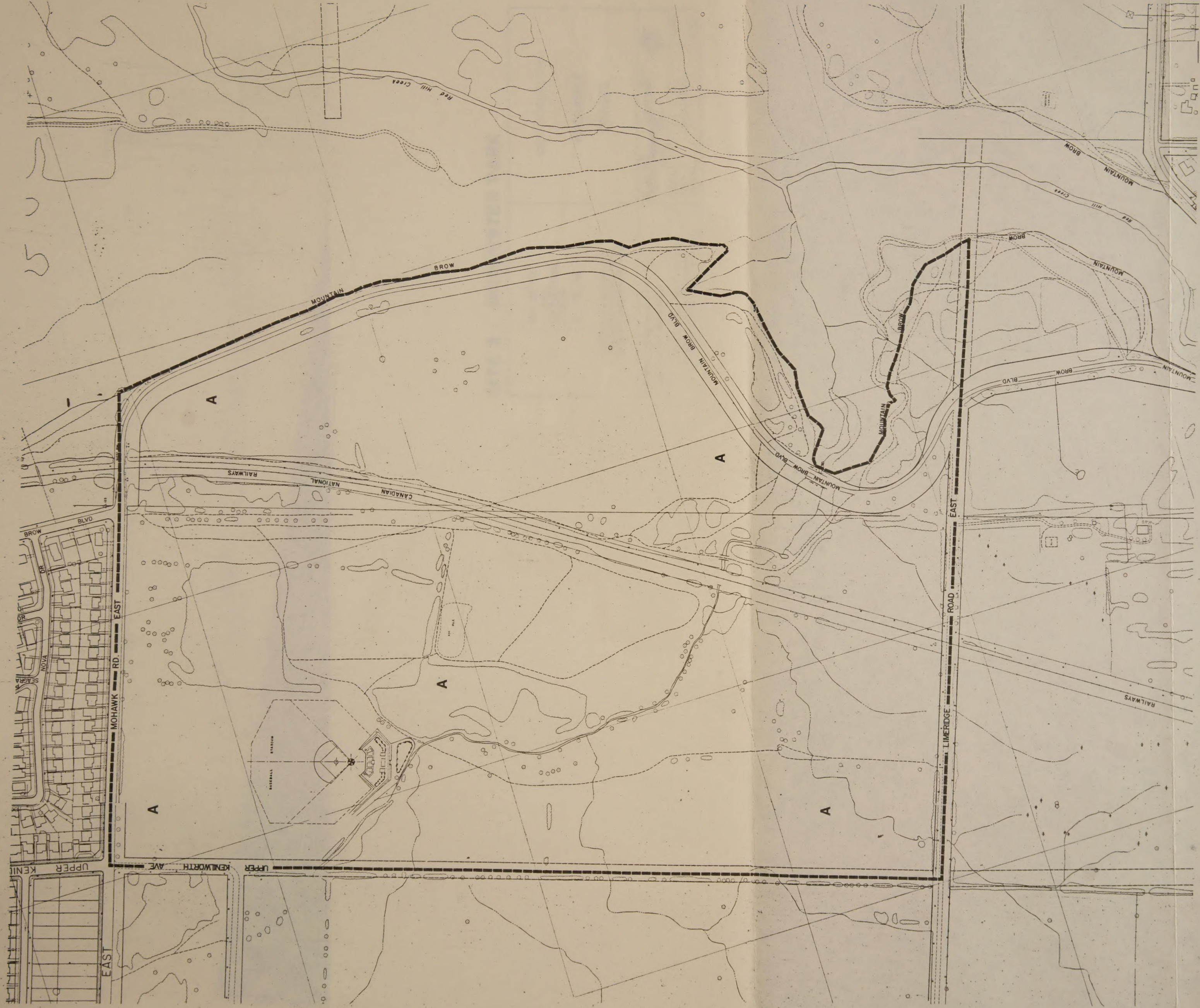
Upon visit to the three sites and general review of the site characteristics, it can be concluded that the Mohawk Sports Park appears to be more desirable.

The site is spacious and is surrounded by beautiful parkland with impressive views of the Hamilton skyline. Although not central to the City, the site is conveniently located within a short drive from anywhere in the City. As a regional facility it will be well served by regional highways (construction of the Red Hill Expressway will commence in 1990). The surrounding roadway system is in place which will facilitate the traffic circulation in and out of the Park during gala events at the Aquatic Facility with little interruption of the neighboring residential streets. The site is basically flat and open, and lends itself to future expansion or development of other compatible recreation uses.



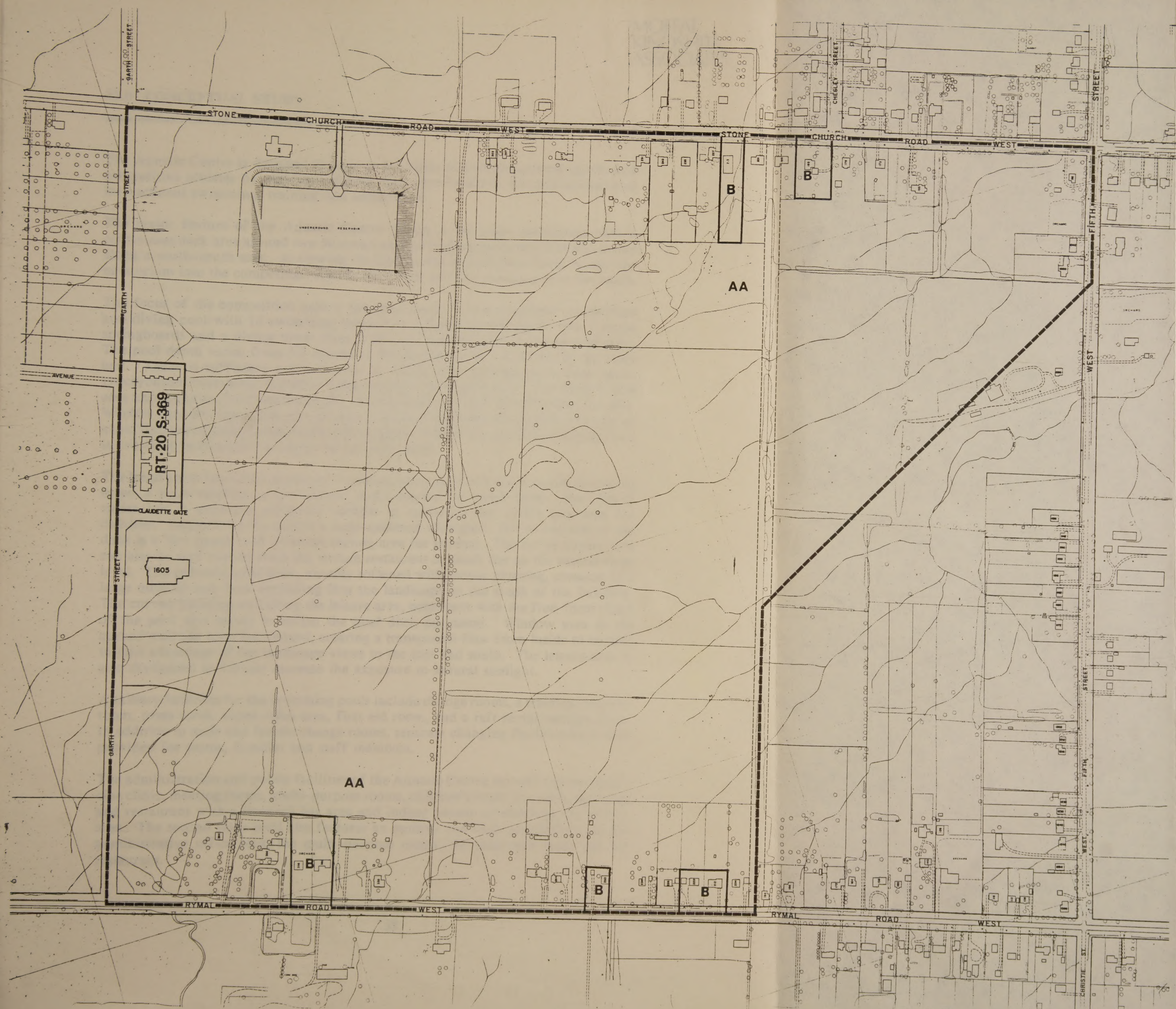
SITE LOCATIONS

1. Mohawk Sports Park
2. McQuesten Park
3. Sheldon Neighborhood



SITE 1 : MOHAWK SPORTS PARK

67 67 87 97 81 89 131 5 5 This is not a Legal Document For Zoning Verification Please Contact City Building Department.	CITY OF HAMILTON		
	UPPER KING'S FOREST		
	ZONING		
Neighbourhood Boundary Zoning Boundary	0 50 m 100 m SCALE NORTH	PLANNING UNIT NO 7303	
Prepared for The City of Hamilton by the Planning and Development Department of The Regional Municipality of Hamilton Wentworth		June 1985	PAGE NO 91



SITE 3 : SHELDON NEIGHBORHOOD

<table border="1"><tr><td>50</td><td>53</td><td>86</td></tr><tr><td>44</td><td>121</td><td>101</td></tr><tr><td>20</td><td>84</td><td>83</td></tr></table>	50	53	86	44	121	101	20	84	83	CITY OF HAMILTON SHELDON ZONING
50	53	86								
44	121	101								
20	84	83								
This is not a Legal Document For Zoning Verification Please Contact City Building Department.										
--- Neighbourhood Boundary --- Zoning Boundary.	0 100 m SCALE 50 m NORTH									
Prepared for The City of Hamilton by the Planning and Development Department of The Regional Municipality of Hamilton Wentworth	PLANNING UNIT NO 7605 June 1985 PAGE NO 121									

10.0 CONCEPTUAL STUDY

The Aquatic Centre is designed to cater to the needs of both the general public and competitive athletes by making available first class facilities for recreational and instructional swimming, training and competition.

The major feature of the Aquatic Centre design is the large natatorium with a continuous deck area around two 50 metre long swimming pools oriented end to end along a north-south axis. A viewing "bridge" at the second floor level bisects the natatorium into the competition area to the north, and the leisure area to the south.

The focus of the competition area is the main pool. It is a combined competition and diving pool with 10 swimming lanes, two 1 metre springboards, two 3 metre springboards and a diving tower with 5 metre, 7.5 metre and 10 metre platforms. The pool depth varies from 5.0 metres at the diving end to 1.8 metres at the other end. There is sufficient water volume in this pool to accommodate water polo, synchronized swimming and other programmed aquatic activities. The competition area also includes fixed seating on the second floor level for 1500 additional people. Window area has been kept to a minimum around the competition area in order to avoid distracting and potentially dangerous glare. A generous equipment storage area is provided immediately adjacent to the pool deck.

The leisure area features a combined warm-up/wave pool with six 50 metre swimming lanes, a wave machine, a "wet beach" and a lagoon for water slides. Pool depth varies but is generally relatively shallow to maximize the usable pay area for children. Adjacent to the pool is a semi-enclosed whirlpool. Off to one side of the deck is a "dry beach" and informal seating area for parents. The entire leisure area can also be well viewed from the terrace restaurant or snack bar on the second floor level. The generous pool deck, visually softened with indoor planting, connects to a large outdoor sun deck extending into the landscape to the south of the building. The curved building wall along the leisure area, consistent with the free-form shape of the pool also serves to soften the pool deck perimeter. Window area in the curved wall has been maximized, creating a transparent flow from inside to outside to take advantage of the landscape views to the east and south. The leisure area is also skylighted to further increase the exposure to natural sunlight.

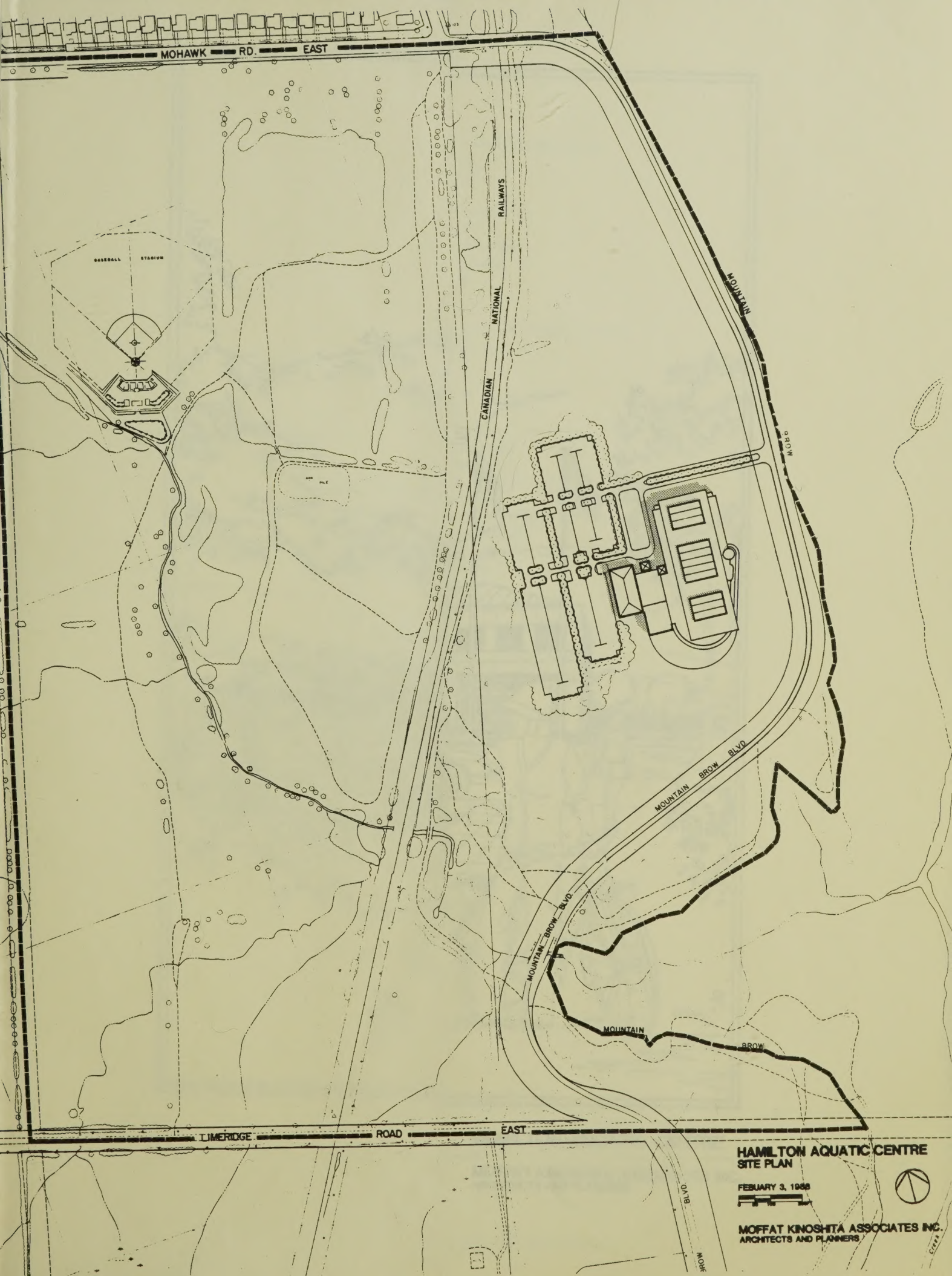
Auxiliary facilities for the swimming pools include change rooms, a training/exercise room, press room, supervision area, first aid room, and a raft rental/storage room. In addition to male and female change rooms, separate changing facilities have been provided for teams, families and staff members.

The administration and public facilities of the Aquatic Centre include a sports medicine clinic, meeting rooms, multi-purpose rooms, children's room, pro shop, snack bar and restaurant with a licensed bar area and indoor terrace overlooking the leisure area. The second floor level also features an outdoor sun deck accessible from the administrative office area, the multi-purpose rooms, the children's room and the restaurant.

The building, clad in brightly colored prefinished metal panels with tinted glass windows, is sited to make the most of the dramatic views to and from the south and east of the site.

Parking is to be located to the north and west of the building - close to the entrance, but well separated from the outdoor deck areas to the south and the views to the east, and generally screened from view with ample landscaping.

The complex has been designed to be totally accessible and usable by the handicapped. Ramping and the provision of a passenger elevator make it possible for wheelchair users to get to all parts of the complex including the warm-up wave pool. Specially designated areas are provided in the parking lot as well as in the spectator seating area.



MOHAWK RD. EAST

BASEBALL STADIUM

RAILWAYS

NATIONAL

CANADIAN

MOUNTAIN

MOORE

MOUNTAIN BROW BLVD

MOUNTAIN BROW BLVD

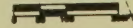
MOUNTAIN

BROW

LIMERIDGE ROAD EAST

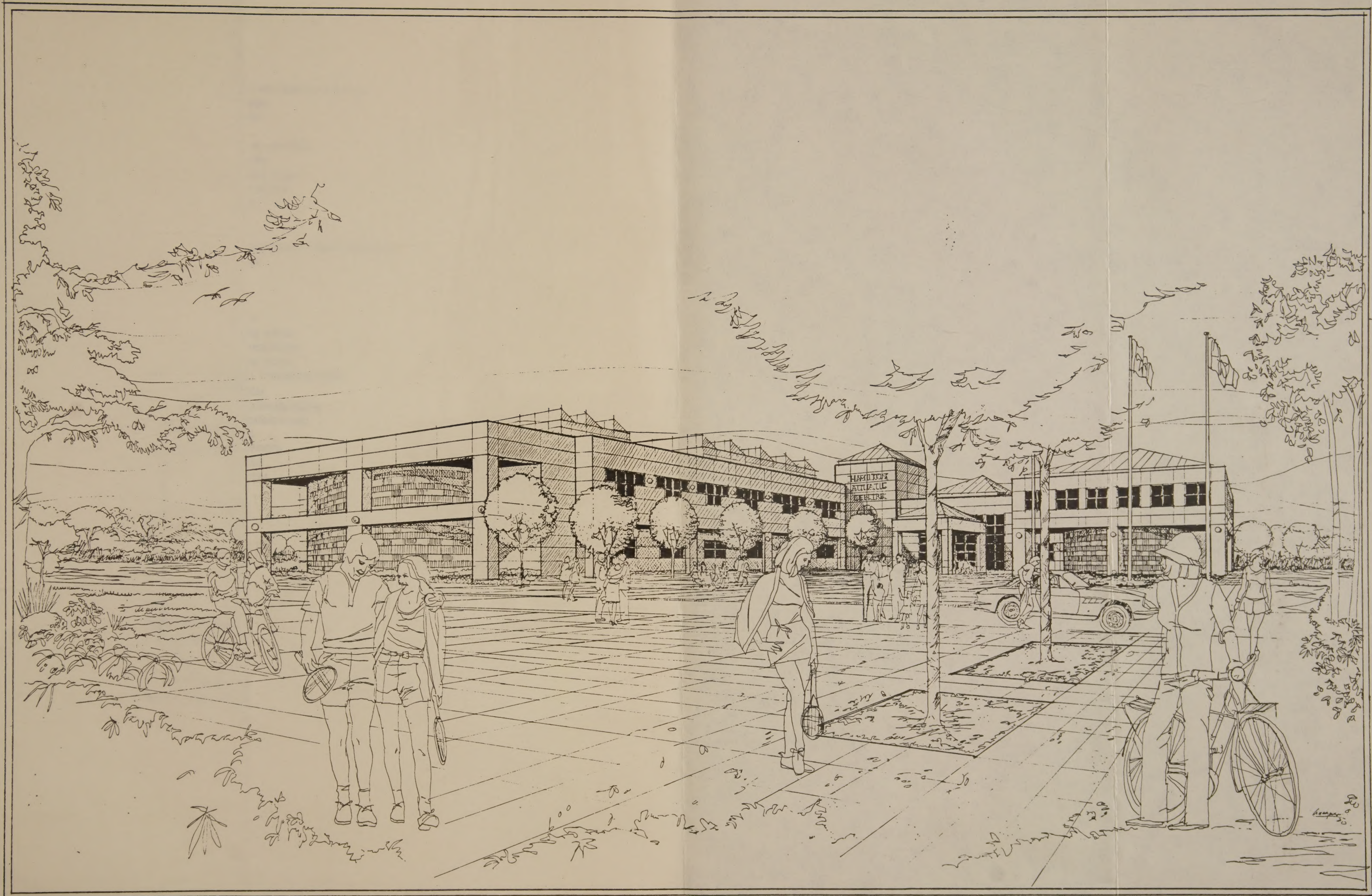
HAMILTON AQUATIC CENTRE SITE PLAN

FEBRUARY 3, 1968



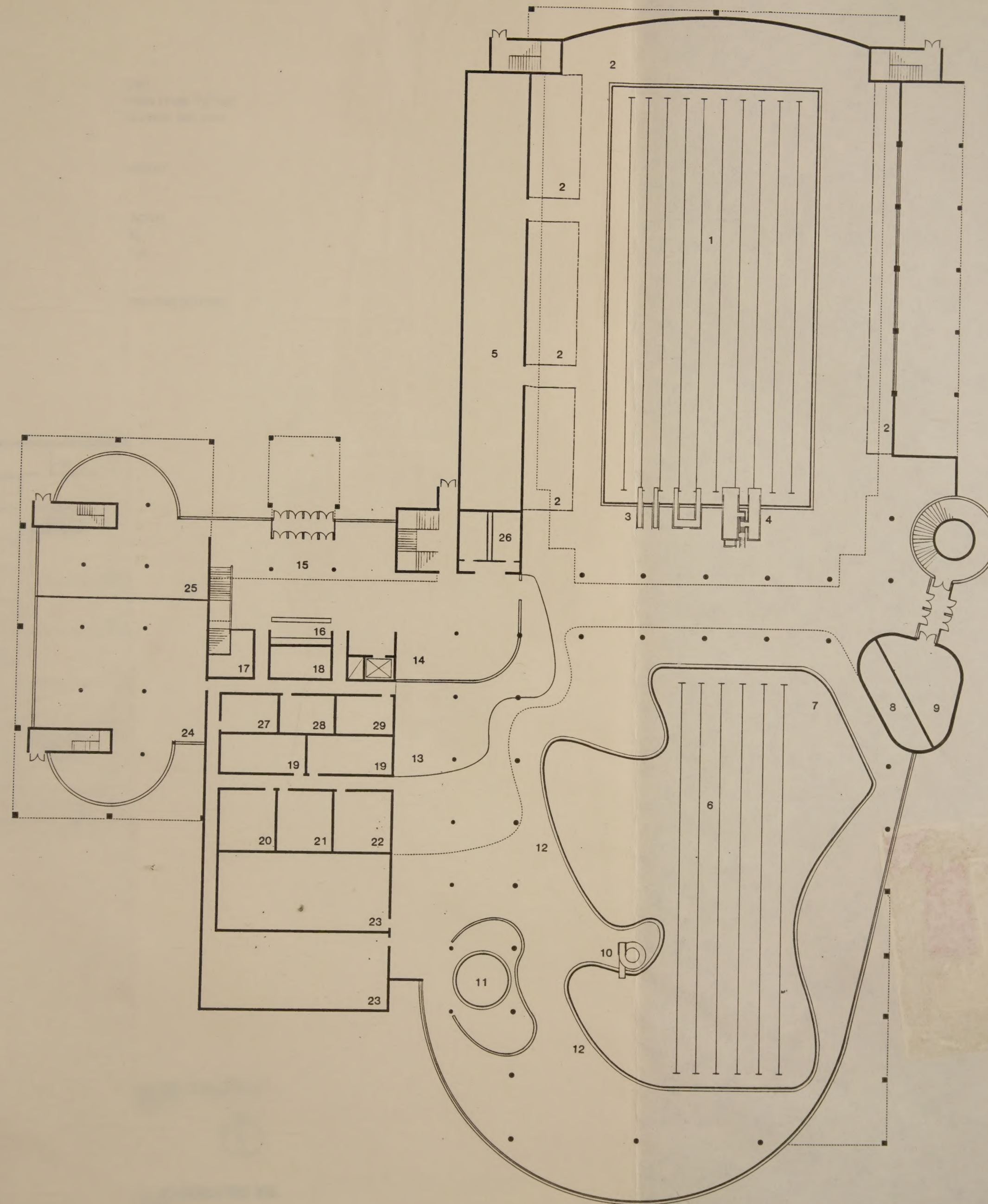
MOFFAT KINOSHITA ASSOCIATES INC.
ARCHITECTS AND PLANNERS





HAMILTON AQUATIC CENTRE

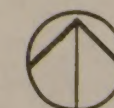
MOFFAT KINOSHITA ASSOCIATES INC.
ARCHITECTS AND PLANNERS



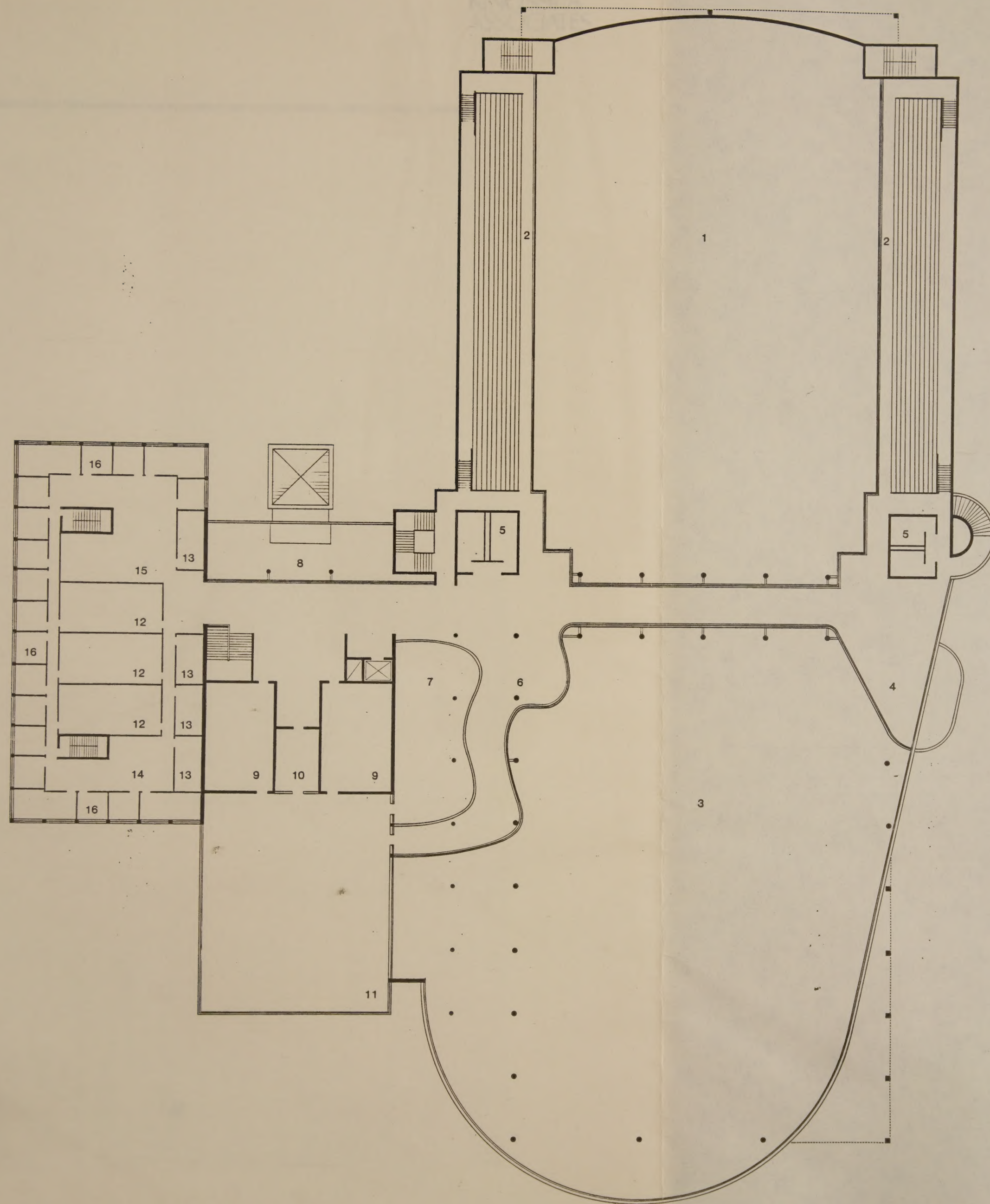
1. MAIN POOL
2. TEMPORARY SEATING (1500 TOTAL)
3. SPRINGBOARDS
4. DIVING TOWER
5. STORAGE
6. WARM-UP / WAVE POOL
7. WAVE MACHINE
8. WAVE MACHINE ROOM
9. POOL FILTER ROOM
10. WATER SLIDE
11. WHIRLPOOL
12. WET BEACH
13. DRY BEACH (INFORMAL PARENTS SEATING)
14. VIEWING AREA
15. LOBBY
16. CONTROL
17. PRO SHOP
18. INFO/TICKETS
19. TEAM CHANGE ROOM
20. FAMILY CHANGE ROOM
21. STAFF CHANGE ROOM
22. RAFT RENTAL / STORAGE ROOM
23. CHANGE ROOM
24. TRAINING / EXERCISE ROOM
25. SPORTS MEDICINE CLINIC
26. WASHROOMS
27. COACHES' OFFICES
28. STAFF LOUNGE
29. FIRST AID ROOM

**HAMILTON AQUATIC CENTRE
FIRST FLOOR PLAN**

FEBRUARY 3, 1988
0 1 2 3 4 5 6 7 8 9 10m



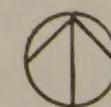
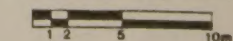
MOFFAT KINOSHITA ASSOCIATES INC.
ARCHITECTS AND PLANNERS



1. MAIN POOL (BELOW)
2. PERMANENT SEATING (1500 TOTAL)
3. WARM-UP / WAVE POOL (BELOW)
4. SNACK BAR
5. WASHROOMS
6. TERRACE RESTAURANT
7. RESTAURANT
8. LOBBY (BELOW)
9. MULTI-PURPOSE ROOM
10. CHILDREN'S ROOM
11. OUTDOOR TERRACE
12. CLASSROOM
13. MEETING ROOM
14. SPORTS ADMINISTRATIVE CENTRE
15. MANAGEMENT
16. OFFICES

**HAMILTON AQUATIC CENTRE
SECOND FLOOR PLAN**

FEBRUARY 3, 1988



MOFFAT KINOSHITA ASSOCIATES INC.
ARCHITECTS AND PLANNERS

APPENDIX A

TABLE A1: POOL INVENTORY													
POOL NAME	POOL SIZE	ATTACHED TO SCHOOL	OPERATING HOURS		TOTAL HOURS PER YEAR	WEEK-DAYS	SUMMER WEEK-NIGHTS		WEEK-ENDS		HOURS AVAILABLE		WEEK-ENDS
			SUMMER PER WEEK	SPRING/FALL WINTER PER WEEK							WEEK-DAYS	WEEK-NIGHTS	
INDOOR													
Hamilton East Kiwanis Boys and Girls Club	20yds x 25ft	no	69.00	50.00	-	0	0	0	6	10	0	0	12
Sir Winston Churchill	81.25ft x 37 ft.	yes	70.00	80.00	4,000.00	0	0	0	0	0	0	0	6
H.G. Brewster	25m x 12m	yes	90.00	100.00	5,000.00	-	-	-	-	-	-	-	-
MacNab Street YWCA Pool	75ft x 24ft	no	71.00	84.50	4,245.50	2	-	-	8	4	-	-	8
Ottawa Street Community YWCA Pool	25yds x 30yds	no	64.50	74.00	3,162.00	-	-	-	-	-	-	-	2
Huntington Park	18.3m x 7.2m	no	64.50	79.00	3,963.00	-	-	-	2	-	-	-	2
Ryerson Recreation Centre	25m x ?	yes	71.50	76.50	3,928.00	0	0	0	1	3	0	0	0
Westmount	25m x 15m	yes	78.00	80.00	-	0	0	0	0	0	0	0	0
Norman "Pinky" Lewis Complex (hot pool)	-	yes	14.00	15.75	771.75	0	5	5	7.5	0	5	5	7.5
(main pool)	25m x 15m	yes	73.50	80.00	4,000.00	5	0	0	13.5	7	0	0	9
Sir Allan MacNab	(hot pool) 25ft x 25ft	yes	65.00	70.00	3,440.00	0	0	0	0	0	0	0	0
Sir Allan MacNab	(main pool) 25m x 18m	yes	80.00	85.00	4,190.00	0	0	0	0	0	2	2	1
Dalewood Recreation Centre	25m x 15m	yes	75.00	86.00	4,344.00	0	0	0	0	-	-	-	-

TABLE A2: POOL INVENTORY										
	BATHER CAPACITY	BATHER LOAD	% NON RESIDENT USE	DESIGN PROHIBITS USE	TRENDS IN USE PAST 5 YEARS	NEXT 5 YEARS	DEMANDS UNABLE TO ACCOMMODATE	EFFECT OF NEW POOL ON USE	TOTAL HOURS LOST	RECOVERABLE/ NON-RECOVERABLE
INDOOR										
Hamilton East										
Kiwanis Boys and Girls Club	75	71,000	2.00%	yes	increased	don't know	yes	none	-	-
Sir Winston Churchill	150	52,000	5.00%	yes	increased	increase	no	positive	-	-
H.G. Brewster	-		-	yes	increased	increase	yes	none	-	-
MacNab Street YWCA Pool	98	15-20,000	-	no	fluctuates	increase	no	don't know	-	-
Ottawa Street Community YWCA Pool	105	50,777	5.00%	yes	increased	stable	yes	don't know	-	-
Huntington Park	75	40,613	2.00%	yes	stable	stable	yes	positive	94	-
Ryerson Recreation Centre	149	41,092	10.00%	yes	increased	stable	no	positive	5	non-recoverable
Westmount	150	51,000	approx. 1%	yes	stable	increase	yes	positive	0	-
Norman "Pinky" Lewis Complex	not available for hot pool									
Norman "Pinky" Lewis Complex	149	77,687	1.75%	no	increased	increase	yes	positive	-	-
Sir Allan MacNab (hot pool)	25-30	44,460	-	no	increased	stable	yes	none	-	-

TABLE A2 cont'd																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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APPENDIX B

Table B1 (cont'd)														
CLUB NAME	USE A NEW POOL IN HAMILTON	WEEK- DAY	HOURS USED NOW			SUFFICIENT YES/NO	ADDITIONAL HOURS REQUESTED			TOTAL WEEKLY HOURS TRANSFERRED TO A NEW POOL	WEEKLY HOURS OF SPECIALIZED FACILITY USE*	ADDITIONAL HOURS PER YEAR FOR MEETS TRANSFERRED		
			WEEK- NIGHT	WEEK- END	TOTAL		WEEK- DAY	WEEK- NIGHT	WEEK- END				TOTAL	
HWRCSB Elementary Competitive Development	yes	6.00	-	-	6.00	no	16.00	-	-	16.00	6.00	6.00		
HWRCSB Secondary School Competition	yes	8.00	6.00	-	14.00	no	20.00	-	-	20.00	10.00	10.00		
Synchronized Swim Beginners	yes	3.00	8.00	6.00	17.00	not for advancement	6.00	6.00	6.00	18.00	6.00	8.00		
Hamilton High School Water Polo	yes	8.00	-	-	8.00	no	14.00	-	-	14.00	4 - 5 ***	6-8 meets/year		
TOTAL		53.50	86.75	34.50	174.75		86.00	50.00	29.00	165.00	65.75-66.75	62 minimum		

Table B2 (cont'd)									
CLUB NAME	CURRENT MEMBERSHIP	% HAMILTON RESIDENTS	PAST TRENDS	FUTURE TRENDS	CAN ACCOMMODATE ADDITIONAL MEMBERS	WAITING LIST			
Hamilton Water Polo Club	75	80%	decreased	increase	no	yes			
Hamilton High School Water Polo	400	100%	increased	increase	no	no			
Public School Competitive Development (Beginners)	60	100%	decreased	increase	no	no			
Public School Competitive (Team)	400	100%	decreased	increase	no	no			
HWRCSSB Elementary Competitive Development	40	100%	decreased	increase	no	no			
Synchronized Swim Beginners	70	100%	decreased	increase	no	yes			
HWRCSSB Secondary School Competition	300	100%	stable	increase	no	yes			

ALTERNATIVE 2

This alternative was developed based on the assumption that one 50 metre main pool and a 25 m warm-up/leisure pool will be provided. The facilities will have the capabilities for hosting CASA national short course championships, provincial long and short course championships as well as Canada Games and Provincial Games. The facilities also meet the minimum standard for bidding for CASA long course championships and international meets, but will not necessarily get the championships.

Presently there are two facilities in Canada (Olympic Pool in Montreal and Kinsmen Park Aquatic Centre in Edmonton) with a 50 m warm-up pool to supplement a 50 m main pool. These facilities have been used for international championships and for the CASA national long course championships. In all practicality, only bids from municipalities with equivalent facilities will receive serious consideration.

Space Program

Sq.Ft.

1. Main Pool

13,724

- . 51 m x 10 lanes @ 2.5 m
- . Pool depth varies from 5 m to 1.8 m
- . One diving tower with 10 m, 7.5 m, 5 m and 3 m platforms
- . Two 3 m and two 1 m springboards
- . Sufficient water volume to accommodate
 - Water polo 30 m x 20 m x 1.8 m deep
 - Synchronized swimming 12 m x 12 m x 3 m deep
 - Diving 20 m x 15 m x 5 m deep
- . Ceiling height is 13.4 m minimum above the 10 m tower
- . Movable bulkhead and electronic timing
- . Bubble machine

2. Warm-up/Wave Pool

11,500

- . Swimming training water area
 - 25 m x 6 lanes @ 2.5 m
- . Pool depth varies from 0 m to 1.8 m
- . Wave machine
- . Movable bulkhead
- . Hydraulic floor/hydraulic wall
- . Lagoon for water slides

3. Whirlpool, Jetted Tubs	200
4. Deck Area	24,000
. Minimum 5 m at both ends of main pool	
. Minimum 3 m at both sides of main pool	
. Minimum 1.8 m around warm-up pool	
. Play area	
. Space for 1000 temporary seats	
5. Change Rooms	
. 2 group change rooms and 2 team rooms	4,000
. Lockers	1,000
. Family change rooms 2 @ 80 sq.ft.	160
. W.C./showers/drying area	2,500
. Saunas	200
6. Supervision	
. Technical monitor area	250
. First aid room	120
. Staff change rooms	200
. Staff room	150
. Raft rental/storage room	500
7. Competition Support Facilities	4500
. Resistance training	1000
. Exercise room	3000
. Press room	300
. Electronic Timers' Room	200
8. Sport Administrative Centre	
. Sport group offices 10 @ 120 sq.ft.	1,200
. Sport coordinator's office	250
. Boardroom	400
. Meeting rooms 2 @ 150 sq.ft.	300
. Secretarial/storage	400
. Seminar Rooms 2 @ 750 sq.ft.	1,500

9. Sports Medicine Clinic	2,000
10. Management	
. Info/ticket	250
. Pro shop	200
. Manager's office	300
. Staff offices 4 @ 120 sq.ft.	480
. General office area/storage/meeting rooms/reception	1,500
11. Public Facilities	
. Lobby	1,500
. Restaurant/snack bar	2,000
. Seating	
. Kitchen/storage	
. W.C.	
. Seating for 1000 permanent seats	4,500
. Seating for 1000 temporary seats	-
. Children's room	300
. Multi-purpose rooms 2 @ 750 sq.ft.	1,500
12. Service and Storage	
. Pool storage	2,500
. General storage	1,000
. Chemicals rooms	300
. Filter room	2,500
. Wave machine room	600
Total Net Assigned Area (75%)	88,484 sq.ft.
Total Gross Floor Area (100%)	117,978 sq.ft.

Capital Cost Estimate

The following Order of Magnitude estimate is intended to provide a very approximate assessment of direct and indirect construction costs for the proposed aquatic facilities. They represent construction cost in Spring 1988 dollars.

Excluded from the costs are the following:

- . escalation beyond Spring 1988
- . cost for unusual foundations or soil conditions
- . administration costs - legal, fees, insurance, owners staff and associated management fees
- . financing costs
- . land acquisition costs, if applicable

Order of Magnitude costs were determined by applying current construction costs to area estimates derived from the space program. Total costs are rounded up to nearest \$100,000.

A. Building Construction Cost	
118,000 sq.ft. @ \$160	\$18,880,000
B. Site Development Allowance	
5% of Building Construction Cost	\$ 944,000
(including roads and parking, normal site utilities hook-up, landscaping, storm drainage, lighting and signage).	
C. Total Construction Cost (A + B)	\$19,824,000
D. Furniture, Furnishings and Movable Equipment Allowance	
7% of C	\$ 1,388,000
E. Contingencies	
10% of C	\$ 1,982,000
F. Professional Fees and Expenses	
10% of C (including survey, soil test, consultants fees, building permits, etc.)	\$ 1,982,000
G. Total Project Cost	\$25,176,000

ALTERNATIVE 3

This alternative space program was developed based on the assumption that one 50 metre 'P' shaped pool will be built to accommodate all active and passive aquatic activities. The facilities will have the capabilities for hosting CASA provincial short course championships and the Ontario Games.

Space Program	Sq.Ft.
1. Competition/Wave Pool	20,000
. 51 m x 10 lanes @ 2.5 m . Pool depth varies from 5 m to zero depth . One diving tower with 10 m, 7.5 m, 5 m and 3 m platforms . Two 3 m and two 1 m springboards . Sufficient water volume to accommodate - Water polo 30 m x 20 m x 1.8 m deep - Synchronized swimming 12 m x 12 m x 3 m deep - Diving 20 m x 15 m x 5 m deep . Ceiling height is 13.4 m minimum above the 10 m tower . Movable bulkhead and electronic timing . Bubble machine . Wave machine . Movable bulkhead . Hydraulic floor/hydraulic wall . Lagoon for water slides	
2. Whirlpool, Jetted Tubs	200
3. Deck Area	20,000
. Minimum 5 m at both ends of pool . Minimum 3 m at both sides of pool . Play area . Space for 750 temporary seats	
4. Change Rooms	
. 2 group change rooms and 2 team rooms . Lockers . Family change rooms 2 @ 80 sq.ft. . W.C./showers/drying area . Saunas	3,000 900 160 2,500 200

5. Supervision

. Technical monitor area	200
. First aid room	120
. Staff change rooms	200
. Staff room	150
. Raft rental/storage room	500

6. Competition Support Facilities 3700

. Resistance training	800
. Exercise room	2500
. Press room	200
. Electronic Timers' Room	200

7. Sport Administrative Centre

. Sport group offices 8 @ 120 sq.ft.	960
. Sport Coordinator's office	250
. Boardroom	400
. Meeting rooms 2 @ 150 sq.ft.	300
. Secretarial/storage	400
. Seminar Rooms 2 @ 750 sq.ft.	1,500

8. Sports Medicine Clinic 2,000

9. Management

. Info/ticket	250
. Pro shop	200
. Manager's office	300
. Staff offices 4 @ 120 sq.ft.	480
. General office area/storage/meeting rooms/reception	1,000

10. Public Facilities

. Lobby	1,500
. Restaurant/snack bar	2,000
. Seating	
. Kitchen/storage	
. W.C.	
. Seating for 500 permanent seats	2,250

. Seating for 750 temporary seats	--
. Children's room	300
. Multi-purpose rooms 2 @ 500 sq.ft.	1,000

11. Service and Storage

. Pool storage	2,000
. General storage	1,000
. Chemicals rooms	300
. Filter room	2,000
. Wave machine room	600

Total Net Assigned Area (75%) **72,420 sq.ft.**

Total Gross Floor Area (100%) **96,560 sq.ft.**

Capital Cost Estimate

The following Order of Magnitude estimate is intended to provide a very approximate assessment of direct and indirect construction costs for the proposed aquatic facilities. They represent construction cost in Spring 1988 dollars.

Excluded from the costs are the following:

- . escalation beyond Spring 1988
- . cost for unusual foundations or soil conditions
- . administration costs - legal, fees, insurance, owners staff and associated management fees
- . financing costs
- . land acquisition costs, if applicable

Order of Magnitude costs were determined by applying current construction costs to area estimates derived from the space program. Total costs are rounded up to nearest \$100,000.

A. Building Construction Cost	
97,000 sq.ft. @ \$160	\$15,520,000
B. Site Development Allowance	
5% of Building Construction Cost	\$ 776,000
(including roads and parking, normal site utilities hook-up, landscaping, storm drainage, lighting and signage).	
C. Total Construction Cost (A + B)	\$16,296,000
D. Furniture, Furnishings and Movable Equipment Allowance	
7% of C	\$ 1,141,000
E. Contingencies	
10% of C	\$ 1,630,000
F. Professional Fees and Expenses	
10% of C (including survey, soil test, consultants fees, building permits, etc.)	\$ 1,630,000
G. Total Project Cost	\$20,697,000

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